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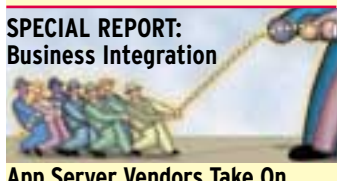

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ISO TO SQL'S BIG THREE: GET TOGETHER ON XML

'SQL 2003' to standardize XML interfaces, improve interoperability

BY EDWARD J. CORREIA

It's been nearly four years since the last update to ISO/IEC 9075, better known as SQL 99. In that time, the wide adoption of XML as an integration method has caused the major database vendors—in the absence of a standard—to go their separate ways on interfacing with XML.

That's about to change. When the next version of the SQL standard, code-named "SQL 2003," is published later this year or early next, it will extend the SQL syntax and specify how the multidimensional language should interface with the document-centric 2D world of XML.

'Yukon' will implement parts of SQL 2003, says Microsoft's Rizzo.

Ake Persson, a developer with Sweden's Upright Database Technology AB, and a spokesman for the International Standards Organization (ISO), the body responsible for publishing the database

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ActiveState Vows It Will Stay Active

Says despite Sophos acquisition, Komodo, language tools will survive

BY DAVID RUBINSTEIN

Anti-virus company Sophos Inc. late last month acquired the assets of ActiveState Corp., which develops both e-mail filtering software and integrated development environments for open-source languages such as PHP, Perl and Python. The all-cash deal was valued at US$23 million.

Sophos founder and joint CEO Peter Lammer said in a statement that ActiveState's anti-spam technology will round out Sophos' offering. He did not make any mention of the Komodo IDE or the tools for the open-source languages that the privately held ActiveState created. The focus of the acquisition clearly was on PureMessage, the company's anti-spam and anti-virus e-mail filter.

But David Ascher, the technical lead for ActiveState's Komodo IDE and Python initiatives, claimed support for the tools and programming languages will "grow and expand as scheduled." Komodo 2.5 shipped a few days before the deal was consummated, Ascher said, and the company is continuing to discuss its future. "We will stay involved with the programming language communities," he said. "There's no reason to mess with something that works so well."

Mark Jacobsen, executive vice president of business development at O'Reilly & Associates Inc., which is a vocal advocate for open-source language and also an investor in ActiveState, said that throughout the negotiations, Sophos officials indicated they were committed to continuing the open-source tools line. "They

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AMD Brings 64-Bit to Mass Market

Beats Intel's Itanium to desktops, notebooks

BY ALAN ZEICHICK

SAN FRANCISCO — The desktop just got more complicated—and potentially more powerful. In late September, Advanced Micro Devices Inc. released its Athlon 64 processor family, the company's first 64-bit chips to target desktop and laptop computers.

These new chips, based on the AMD64 microarchitecture, are similar to the company's Opteron processors in that they can run not only 32-bit *x*86 applications at full speed, but also 64-bit applications using a set of extensions to the *x*86 instruction set. In fact, when running a 64-bit operating system, the processors can support both 64-bit and 32-bit applications simultaneously.

There are three members of the Athlon 64 family, all of which use model numbers rather than clock speeds. AMD argues that architectural differences between its chips and Intel's offerings make clock-speed comparisons inaccurate for gauging processor performance.

The Athlon 64 model 3000+ is designed for notebook PCs; the model 3200+ is for consumer

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SD Times Photo: Alan Zeichick

AMD CEO Hector de J. Ruiz, center, launches the Athlon 64 with guitarists Dweezil Zappa and Ray Benson.

RENEWED CALL FOR OPEN BENCHMARKS

Court decision gives advocates a boost

BY DAVID RUBINSTEIN

The decision last month in U.S. District Court to deny a request by TIBCO Software Inc. to squash the publication of competitive benchmark results by Sonic Software Corp. has again cast a light on the issue, with advocates of the open exchange of information hailing the ruling as a victory for customers.

TIBCO, which did not respond to several requests to discuss the case, had sought a restraining order to stop Sonic from publishing a performance comparison between the SonicMQ and TIBCO Enterprise for JMS products. The court's decision read in part, "The

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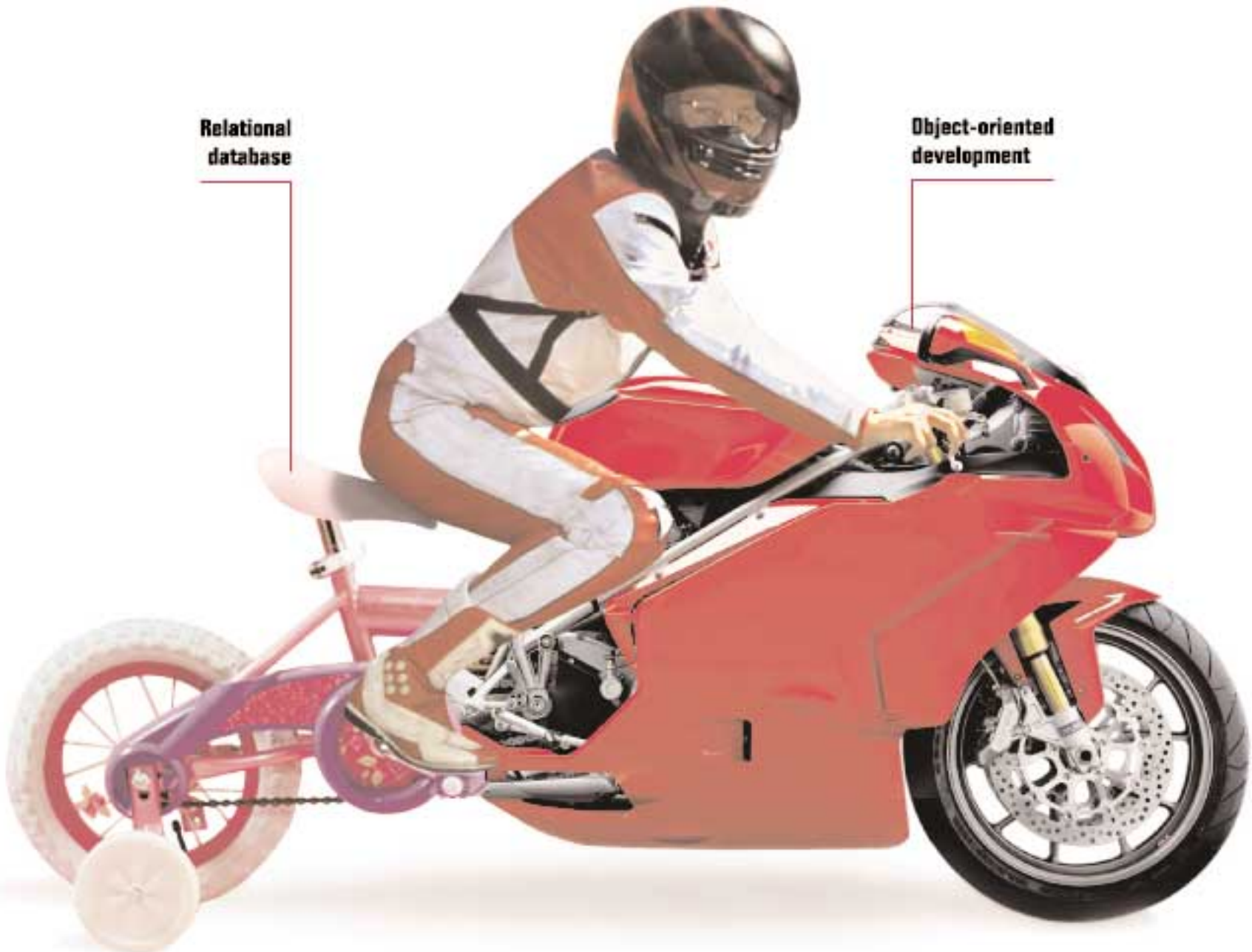

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SCO, Linux Vendors Trade Shots

HP indemnifies customers; IBM files new countercharges

BY YVONNE L. LEE

In the latest round of shots between The SCO Group and Linux vendors, SCO is filing a motion to have a suit against it dismissed, Hewlett-Packard Co. is indemnifying its customers against potential copyright lawsuits that may be pressed against them, and IBM Corp. is serving a new round of countercharges against SCO.

The specific new counterclaims by IBM include breach of contract, trademark violation, unfair competition, intentional interference with prospective economic relations, unfair and deceptive trade practices, breach of the GNU General Public License (GPL), promissory estoppel, infringement of seven specific IBM copyrights and patent infringement. IBM has asked for compensatory and punitive damages, as well as declaratory relief. It also has requested that it be awarded costs and reasonable fees.

The latest legal dance moves follow a chain that began in March when SCO sued IBM, alleging the Armonk giant had violated SCO's trade secrets when it contributed to Linux. SCO also sent letters to more than 1,500 large corporations warning them that they could be in violation of SCO's copyrights by using Linux. Ensuing volleys included Linux distributor Red Hat Inc.'s filing a unfair competition suit against SCO in U.S. District Court for the District of Delaware, IBM's filing a countersuit, and SCO's issuing a licensing program under which Linux owners would pay the Utah company per copy of Linux.

The latest moves highlight the different ways two large companies—IBM and HP—have chosen to protect their Linux customers.

"Our belief is that the best way to deal with the SCO campaign is where it can truly be resolved—in court," said IBM vice president of systems sales Bob Sampson in a letter to his sales staff.

"We have decided it's in our customers' best interest to offer indemnification to any company who acquires Linux directly from HP with a standard support contract—after Oct. 1, 2003," said Donna Bloechl, HP's analyst relations manager.

IBM, which filed the additional countercharges several days after HP announced in late September its intention to indemnify its customers, said it believed most indemnification policies run counter to the spirit of open source. For example, HP's indemnification requires its Linux customers not to alter the Linux code.

"HP is just exercising an option for people who want to feel safer," said Bill Claybrook, research director at Aberdeen Group Inc., in Boston. "[Similarly,] people who develop open-source software generally don't have a warranty, but that doesn't mean they can't."

IBM based its claims largely on an explanation of the GPL, under which Linux founder Linus Torvalds originally distributed his operating system.

"SCO accepted the terms of the GPL by modifying and distributing Linux products," IBM said in its legal filing. "By distributing Linux products under the GPL, SCO agreed, among other things, not to assert—indeed, it is prohibited from asserting—certain proprietary rights over any programs distributed by SCO under the terms of the GPL. SCO also agreed not to restrict further distribution of any programs distributed by SCO under the terms of the GPL."

In response, SCO issued a public statement that it did not believe IBM's claims would stand up in court because they were based on the GPL.

"The GPL has never faced a full legal test, and SCO believes that it will not stand up in court. We are confident that SCO will win the legal battle that IBM has now started over the GPL," the statement said. It asserted that the GPL was fashioned to "supplant current U.S. copyright laws."

"We believe that by trying to protect the GPL, IBM is really opening a big can of worms," said SCO spokesman Blake Stowell. Although much open-source software is based on the GPL, Stowell said his company was not against open-source software, pointing out other licenses such as the Apache Software Foundation and Berkeley Software Development.

Earlier in September, SCO filed a motion to dismiss Red Hat's pending suit against it. In its motion, SCO contends that the suit, which charges SCO with unfair competition, false advertising, unfair and deceptive acts, trade libel and interference with prospective economic advantage, is without grounds and that Red Hat's sole reason for the suit is to defend itself against a suit from SCO that has not been filed.

Such motions are common, said Webster Knight, a Washington, D.C., attorney who has been following the cases. ■

Sometimes, Requirements Require a Picture

Telelogic supports UML 2.0 in new DOORS/Analyst product

BY DAVID RUBINSTEIN

Hoping to provide a common language throughout its tool set to help improve communication among the different departments impacting an application, Telelogic AB this month released a new DOORS/Analyst requirements management tool based on the new UML 2.0 specification, and plans to tie it to its updated Tau/Architect and Tau/Developer tools by the first quarter of next year, the company has announced.

"We know UML is used downstream, so we said let's move it upstream," said Bill Shaw, vice president of lifecycle solutions. "We want to break down communication barriers between systems engineers and software, and systems and hardware."

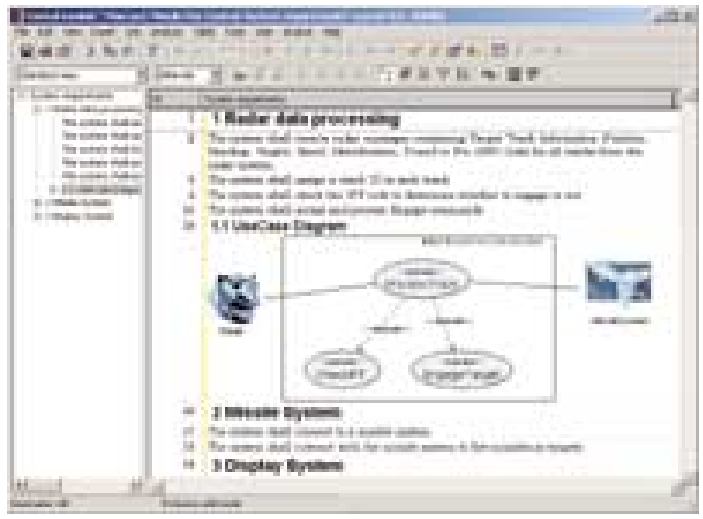
Shaw claimed Telelogic is the first company to release products that conform to the new UML 2.0 specification, which is in the finalization phase at Object Management Group Inc., which oversees the specification. He touted new capabilities such as the ability to model architectural structures and interactions. "To software guys, [UML 2.0] is just another rev. But the systems engineers who never were into it before are now taking notice."

Shaw also said Telelogic is the first company to bring modeling capability into a requirements management tool. He indicated there has been a disconnect between most requirements management tools and diagramming tools such as Visio, because users would have to switch back and forth between them and it was difficult to keep the graphical and textual representations in sync.

With DOORS/Analyst, he claimed, a user can write the text of a use case and automatically generate a diagram from that, or the user can start with a diagram and have the text fill in beneath it automatically. "We're not forcing you to become a UML expert before you can draw a diagram," he said.

The tool can work with all UML Diagrams except Activity Diagrams, but there is a Flowchart Diagram that acts as kind of a subset of the Activity Diagram, Shaw said. When the integration with the Architect and Developer tools is completed, the models will be able to be reused in later phases of development, all while maintaining full traceability between the model and the requirements through each phase.

The Architect and Developer products also were updated last month to enable a graphical "compare and merge" feature to allow as many as four-way comparisons of models before accepting a change, according to Per Blysa, vice president of product management for the Tau family.



A model of requirements can be created in DOORS/Analyst.

Other enhancements include an C code generator for embedded real-time systems, and the ability by users to lay their own defined symbols over the UML symbols to create diagrams that have more meaning, Shaw said. As an example, he said users would not have to use a stick figure of a human to represent a cellular phone. Also, the ability to automatically create models from diagrams that don't have definitions, and to simulate systems without a complete model to better verify behaviors early in development, have been added.

DOORS/Analyst sells for US$2,395 or €3,060 for a node-locked license, or $5,995 and €7,660 for a floating license for up to three users. DOORS licensees looking to upgrade to DOORS/Analyst will pay $395 or €504 for a node-locked license, or $995 or €1,271 for a floating license.

Tau/Architect sells for $6,095 for a node-locked license and $9,995 for a floating license, while Tau/Developer sells for $11,995 and $19,995 for node-locked or floating licenses, respectively. The price is the same for the U.S. and Europe. ■

Rogue Wave Thinks SOAs, Java

Growth of the company not centered on C++ tools, components

BY ALAN ZEICHICK

When developers think about Rogue Wave Software Inc., they're likely to think about the company's long-standing family of C++ tools, such as the SourcePro component library or Stingray GUI kit. But Kathleen Brush is rebuilding the company to look beyond C++ toward the growing service-oriented architecture (SOA) market.

Brush took over as president and CEO after the ouster of John Floisand in February of this year; Thomas Atwood, a board member, assumed Floisand's role as chairman. Since that time, the struggling company has replaced its CFO but continues to show falling revenues. Its third-quarter results, announced in July, showed a 28 percent decline from the same quarter in 2002, and Rogue Wave has had many rounds of layoffs. Yet the company increased its cash reserves and has shipped new products, including an update to SourcePro and its LEIF Web services framework.

What's the future of Rogue Wave? In an exclusive interview, SD Times asked Brush, whose qualifications include a previous role with Rogue Wave as vice president of marketing and engineering, and a Ph.D. in management and international studies, for her vision for the company.

"The company is very healthy," insisted Brush. "We're healthier from a financial perspective—healthier than we have been for many years. I believe that our employees are motivated, and they're squarely behind the new strategy and the overall success of Rogue Wave."

Brush is putting her academic background to good use: "We did something at Rogue Wave that's different than in the past—we spent eight months of concerted research and analysis to determine what would make sense for a strategy and direction. In doing that, we've jettisoned 10 product ideas because we have stringent criteria for what we would find to be a suitable direction and strategy."

Indeed, she said, "the direction and strategy that we've solidified the company around is one that we're comfortable with, because it met all of the criteria." Brush explained, "We did a textbook strategy development process, including a comprehensive strengths, weaknesses, opportunities and threats analysis."

The upshot of that research? "We are now a company that's focused on leveraging opportunities that are afforded to us through the development of service-oriented architectures," she announced. "This opportunity gives us growth potential in a new area outside of C++."

BEYOND C++

Brush acknowledged that to many customers, and in fact to the industry, Rogue Wave is nearly synonymous with C++, and that the company isn't known for its expertise in other areas. "But there is a point in the life of every tech company where the competencies that you have lose value, because they're attached to a declining technology.

So, she continued, "in addition to C++, we also understand application development. A lot of the skills that we have, and the other strengths that we have, like our customer base, are tied to application development. Service-oriented architectures open up opportunities under a new architecture."

The challenge for Rogue Wave is to move from its libraries and components market into the bigger arena of SOAs—which may mean competing against the likes of BEA and IBM. "We've done in-depth analysis of every company that we saw playing a role in SOA," Brush said, "and we understand what position we can solidify ourselves around, to continue to be successful."

Brush continued, "But how do we get from where we are to where we want to be? Our plan revolves around the LEIF product. LEIF gives us an entree into Java and .NET development, by virtue of allowing C++ applications to connect to those other environments. It also gives us an entree into SOA by fabricating Web services."

That leads to new products, Brush said. "From the research that we've done, we see that following fast on the need for fabricating services is the need to manage those services, monitor those services and connect those services," she added. "We see a natural lead-in for us with assembly and orchestration, and Web services management. We also see that we can leverage the inroads that we make with LEIF to branch into a new area, and solidify a reputation as bona fide player, which give us an opportunity to move outside our traditional C++ customer base."

Rogue Wave is taking an industry-standard view of SOAs, Brush explained. "We've used the Gartner model of the 'seven phases of SODA [service-oriented development of applications]' to build our strategy around. A lot of the reason is because they put together a model, and it helps us to be able to talk in the same terms as one of the leading analyst firms."

Despite the new direction, Brush insisted, "we are firmly committed to our customer base, both in the SourcePro side and the StingRay side."

JAVA AND .NET?

Brush indicated that there are two particular areas of product development. "We are investing significantly in LEIF. You should expect to see a lot of new developments coming out of the LEIF team, which would solidify our position in Web services, and in other types of services that would be connected to a service-oriented architecture.

"Beyond that for new products, we are focused on assembly and orchestration, and Web services management, as additional products," she continued, adding that "to complete our new product strategy, Rogue Wave's plans call for a combination of partnerships of different types and internal development."

The new products won't be centered on C++, Brush said. "Those new products will provide us with an avenue to enter into new languages. The area of focus now is Java, but we're keeping our eye on the adoption of .NET languages," she explained.

"We want to help people realize the vision of service-oriented architectures," she concluded. ■

WS-I Tools Around With Compatibility

Test suite shows if Web services conform to the Basic Profile

BY YVONNE L. LEE

Is compatibility finally coming to Web services? That's been the promise from the start, but thanks to tools being released next month by the Web Services Interoperability Organization (WS-I), the technology is inching closer to that goal.

In November, WS-I will release a set of testing tools for developers to verify that Web services meet the conditions set forth in the WS-I Basic Profile, which the consortium completed in August.

The testing tools are designed to ensure there is no ambiguity in how to implement Web services that interoperate even when they are developed with tools and platforms from different manufacturers. A set of sample applications is due by year's end.

"It's one thing to look at the documents; it's another thing to look at the code and tinker with it," said Tom Glover, chairman of WS-I. Although the Basic Profile itself was delayed from June until August because the working group discovered incompatibilities late in the development cycle, the testing tools are moving along as scheduled and are due for a November release, Glover said.

Each of the three parts—the Basic Profile, tools and sample applications—represents a step toward building applications that work together, Glover said.

When WS-I released the profile itself in August, vendors and end users could for the first time review the final documents and begin applying the guidelines to building applications. When the test suites are released, they can verify that the applications actually meet the requirements.

Those tools include a monitoring application and an analysis package that uses the data gathered by the monitoring application. The Web Service Communication Monitor captures and stores messages exchanged between Web services and the software that invokes them. The Web Service Profile Analyzer evaluates messages captured by the Monitor, and validates the description and registration artifacts of the Web service. Those artifacts include WSDL documents that describe the Web service, and the XML schema files that describe the data types used in the WSDL service definition and the UDDI registration entries. The Analyzer's report indicates whether a service meets the WS-I Basic Profile and what needs to be changed to bring a nonconformant service into compliance.

When the sample applications are released, organizations can see how others have created conforming services in either .NET or Java, said Glover. They can then base their applications on the samples.

Although WS-I has created a profile for interoperability, it is neither a standards body nor a testing body. The group works with standards set by vendor consortia and genuine standards bodies such as the W3C.

"The Basic Profile is based on SOAP 1.1, WSDL 1.1 and UDDI 2.0," said Mark Hapner, Sun Microsystems Inc.'s Web services strategist. The experts who drafted WS-I's Basic Profile looked at these standards and then limited them. "Fundamentally, the profile is the work of experts who have looked at the original specification and tried…to remove ambiguities by constraining things so there's less there," Hapner said. "When they looked at that constrained use,

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FIRST OF A THREE-PART SERIES

Today: How WS-I's Basic Profile and its tools are trying to make multivendor, multiplatform interoperable Web services.

Nov. 1: Are vendors implementing the Basic Profile?

Nov. 15: Developers talk about their interoperability issues.

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Breathing New Life Into Legacy Systems

OMG task force seeks to standardize methods for data, app transformation

BY DAVID RUBINSTEIN

An RFP allowing interoperability among applications and data residing on different platforms and written in different languages is expected to be issued by Object Management Group Inc.'s Legacy Transformation Task Force at the organization's meeting next month in London.

Approximately 40 software vendors and customers are participating in the effort, according to William Ullrich, co-chairman of the group and president of Tactical Strategy Group Inc., a consulting firm specializing in organizational and information transformation.

The group is using a broad definition of what a legacy system is—"any production-enabled system regardless of language or platform is a legacy system," Ullrich said—because narrowing that down eliminates too many systems, he indicated. "There are organizations that will take you from .NET and Visual Basic to J2EE, or from Java to .NET and C#, so it's migrating from an accepted new modern platform to another accepted new modern platform," Ullrich said, demonstrating that legacy transformations involve more than moving data off of mainframe systems into more modern architectures.

TRANSFORMATION TIME LINE

Feb. 15, 2004: Letters of intent to submit RFP are due.

January 2005: Final evaluation and selection by task force.

May 2005: Board of directors votes to adopt specification.

Source: Object Management Group Inc.

In fact, companies such as WRQ, NetManage and Attachmate, with which Ullrich has had discussions, "clearly all should participate," he said. Marcus Nitschke, Attachmate's marketing vice president, said the company is in the process of joining OMG. "We're very much on board [with the OMG standards initiatives] and look forward to actively participating in the legacy transformation group," he said. "From a strategy perspective, it's interesting to see an industrywide effort to take a more standardized approach" to solving legacy issues, he added. Also already on board with the project are Cisco, Hewlett-Packard, IBM, Nortel and Unisys, as well as smaller companies such as KLOCwork, a source-code analysis and design tools vendor; and Anubex, a migration methodologies and migration tools company.

The first step in legacy transformation, Ullrich said, is the analysis of existing applications and systems, as well as the intangibles that help provide an understanding of the scope of the legacy environment. The intangibles could be business processes, or a function called "pricing," he explained.

So the first RFP (www.omg.org/docs/lt/03-09-01.pdf) calls for an interoperability metamodel that allows a cross-section of an organization's applications, that typically are written in two or three different languages and reside on a couple of different platforms, to be rolled into a common view. One of the goals is to allow information about the structure and assets of the legacy system to be shared among different vendors' tools, and give the vendors an opportunity to provide a transformation solution that can take advantage of other tools customers might already employ, he said.

The group's road map then calls for a second RFP to define target metamodels, such as J2EE or .NET, to which the defined legacy artifacts can be specified. Many of these metamodels already have been completed as part of other OMG efforts, Ullrich said. The third RFP will define mappings from the platform-independent interoperability metamodel to the targets, and the fourth RFP involves metrics that can be derived from the first three proposals, he said. As an example, Ullrich said an application could have 35 business rules that relate to it, and of those rules, 30 need to be redeployed in the target metamodel. This process can give an organization metrics it can use as it begins to redeploy the legacy assets, he explained.

Ullrich said the initiative is such an important one that companies such as MicroFocus and Relativity joined OMG simply to be involved in this effort. "We're not preaching to the choir," he said. "There are people coming in new who don't know any of [the older OMG standards]."

He did say that OMG's eMOF—Essential Meta Object Facility, which provides the minimal set of elements required to model classes in an object-oriented system—is the minimal level of Model Driven Architecture required to participate in creating the proposals, and the model definitions must be done in UML. "We want to leverage as much as we can from pre-existing work in OMG," Ullrich said. "You'll see the real convergence of these standards with the second and third [legacy transformation] RFPs." ▮

Sun Creates New Constellation Around Java Name

Software rebranding seeks to tighten ties between 'standards' and own products

BY YVONNE L. LEE

Sun Microsystems Inc. is betting that a low price, simplified product structure and frequent release schedule will make customers want to choose its server software stack—not WebSphere, WebLogic or .NET.

The Santa Clara company announced new names and organizations for its software products at its Sun Network Conference in mid-September.

At the core of the new structure is the Sun Java Enterprise System, comprising the Sun ONE software stack, and a new all-inclusive bundling scheme referred to as Project Orion. Sun began talking about Orion in February of this year, announcing its intention to simplify pricing and to encourage customers to standardize on the entire suite of Sun software, from server to desktop to cellular phone. With the new pricing model, the Java Enterprise System is priced at US$100 per employee.

The Java Enterprise System is a rebranding of a rebranding. In April 2002, Sun bundled products that had been part of its iPlanet constellation with its Forte development tools and ChiliSoft tools for porting ASP applications together under the name Sun ONE. The Java Enterprise System platform is priced at $100 per employee per year, with an unlimited right to use in Internet applications.

Many think 'Sun is murkying the waters' with the Java name, says JBoss' Fleury.

With its new brand name, Sun appears to be trying to increase the linkage between Java and its own products. Independent software vendors wondered whether by using the name Java in its products, Sun is exerting a proprietary hold over a brand it had previously allowed the whole Java development community to use.

"As far as the branding goes, I'm a bit confused," said Marc Fleury, president of The JBoss Group. "Java is Sun's brand, so they can do what they want, but a lot of partners are saying Sun is murkying the waters. It used to be that they would keep [Java] more generic. What Sun is saying now is that Java is a company brand."

"I don't read it as being as insidious as that," disagreed Rikki Kirzner, research director at IDC. "It reminds people that Sun is in the Java business. They're not going to use [the word Java] on something that doesn't run Java or isn't Java based. In light of how much IBM's done with Java, it's a good idea for Sun to say, 'Oh yeah, we have Java, too.'"

The Java Enterprise System includes Sun ONE Directory Server, Identity Server and Directory Proxy Server, the Sun ONE Application Server, Sun ONE Message Queue, Sun ONE Web Server, Sun ONE Messaging and Calendar Servers, Instant Messaging and Portal Servers, as well as Sun Cluster availability services. It runs on Solaris for SPARC and *x*86.

Also part of the rebranding is Project Mad Hatter, a collection of desktop software intended to take the place of Microsoft's Office suite and related products. The collection of software now will be called the Java Desktop System and will sell for $100 per desktop or $50 per employee as an add-on to the Java Enterprise System. The major software components are Linux; GNOME 2.2 Desktop; the Mozilla 1.4 Web browser; Evolution 1.4 e-mail, calendar, address book and task list client for the Sun ONE Calendar Server; StarOffice 7 office productivity software; and a J2SE 1.4 runtime.

Sun Java Studio, a set of Java developer tools, includes the former Sun ONE Studio IDE, connector builders, plug-ins and the Sun Java Enterprise System runtime. It costs $5 per employee as an add-on to the Java Enterprise System.

Sun's N1 grid computing platform, which is still in beta test, also will be part of the Java Enterprise System, and according to a company spokesperson will have a name reflecting the Sun and Java branding when it is released.

Sun also slapped its new branding onto its J2ME and Java Card offerings, calling them Sun Java Mobility System and Sun Java Card System.

In addition to reorganizing its software products, Sun announced at the show that it will reorganize its release schedule, with updates released quarterly. Stuart Wells, Sun's senior vice president of market development, said he believes that third parties will be able to test products more efficiently if fresh versions of Solaris, Java and related products are available.

The lowered price and frequent releases are geared toward getting more third-party applications on board, Wells said. ▮

Ink Dries on .NET Components

Infragistics claims to be first vendor to ink-enable WinForms apps

BY ALAN ZEICHICK

Calling its latest components the industry's first to ink-enable applications written for Microsoft's Tablet PC, Infragistics Inc. in early October shipped its NetAdvantage 2003 Volume 3 suite for .NET. The component set, offered as part of the company's subscription offering, also includes new charting and calendar components.

Developers can ink-enable nearly any Windows Forms application, according to Brad McCabe, the company's technology evangelist, allowing pen input on pen-equipped PCs running Microsoft's Windows XP Tablet PC Edition. Further, he said, the company has exchanged ink capability beyond what Microsoft offers in its own pen-input panel.

"Our pen-input panel is very similar to Microsoft's, and that was by design. We both have the same blue writing area and lines," he said, "so that it makes sense to a user familiar with the Tablet PC. But with ours, where I drop down the form, that's where my pen-input panel is—as opposed to [Microsoft's panel] on the bottom of the screen."

Also, he said, Infragistics' pen panel lets users move a cursor interactively to change their editing position, or highlight and replace letters. It also provides a drop-down menu to modify, delete or rewrite text. "We also gave you a symbol pad, a numeric pad or whole functional keyboard" that's instantly accessible, he said, for those who prefer to tap out their input, or forget the pen gestures for specific symbols.

Unlike Microsoft's pen-input panel, bottom, UltraInkProvider offers instant feedback on the recognition of gestured letters, numbers or symbols.

McCabe explained, "We're using the Microsoft recognizer that's built into the Tablet PC operating system. That means [our component] will run on any flavor of the Tablet PC." So, it runs on English, Japanese or other versions of the pen-based system, he said.

A big change is that Infragistics provides an instant preview of the recognized symbols, said McCabe, giving the user a chance to correct mistakes before submitting the input to the application. By contrast, Microsoft's panel submits the recognized characters directly to the apps. "We show it to you; you can choose to accept it, correct it or cancel it."

The new pen capabilities work across all of Infragistics' Windows Forms .NET components, said McCabe. "Because all of our components are built on top of one common core framework, all of our embeddable editors, drop-down [menus], masked fields, test boxes, are all now ink-enabled." If you want to make an application pen-ready, he said, "grab the non-visual UltraInkProvider, drop it onto the form. Our controls sense that the provider is there, and if you're on a Tablet PC, they become ink-enabled." If the application is running on a non-Tablet device, it still runs and doesn't incur extra overhead, he added.

Other enhancements added to this release of the Infragistics component set include upgrades to its Windows Forms grid, charting and scheduler components. There also are new date chooser and calendar components added to its ASP.NET components. The subscription price of the suite is US$695 per year, and includes updates and source code. ▮

JBoss, Sun Bury the Hatchet

Open-source app server vendor accepts invitation to join JCP

BY YVONNE L. LEE

Longtime outsider JBoss Group LLC in September put aside its differences with Sun Microsystems Inc., paid its US$5,000 and is now a member of the Java Community Process, the group that directs the destiny of Java.

The two companies have long locked horns over J2EE compliance. Sun charged that JBoss didn't want to test its application server because that would prove it is not compatible, while JBoss claimed that Sun kept prices for compliance testing too high for a small maker of open-source software.

"I sent [JBoss president] Marc Fleury an e-mail about a month ago," said Onno Kluyt, director of Sun's JCP program office. "Marc answered back in five minutes and said that would be a good idea."

The relationship between Sun and JBoss has been icy, but Fleury said he viewed the invitation as a step toward a thaw. "We took that as a gesture from Sun of a warming relationship," Fleury said. "After [having been branded] as standards renegades in the press, we were almost relieved to see them extend an olive branch."

Members of the JBoss Group individually have been active in the Java Community Process, but the company itself had not joined the consortium, Fleury said.

Before forming the JBoss Group, Fleury had worked with a company called Telkel, which was a JCP member, said Kluyt. "Marc and I were exchanging e-mails about how he could move the membership from Telkel to JBoss," explained Kluyt.

According to Fleury, JBoss plans to use its membership in the JCP to promote aspect-oriented programming into the Java platform; the company includes AOP features in its app server, and has been collaborating with IBM on AspectJ, a programming language originally developed at PARC that uses aspect-oriented techniques. ▮

ACTIVE STATE

◂ continued from page 1

see the contacts with the open-source community as a big competitive advantage," Jacobsen said. As part of the deal, Sophos purchased O'Reilly's stake in the company.

"I can tell you, the [ActiveState] management team felt very comfortable with the whole picture," Jacobsen added. ActiveState had been working on some strategic deals with Sophos, and the acquisition grew out of that relationship, he said. "ActiveState was not shopping" to be bought, Jacobsen said. "Had we done that, we would have had other suitors that would have been a worse fit" than Sophos.

Ascher said he does not expect many personnel changes because of the acquisition, and added that Sophos intends to maintain all product lines as they are. ▮

Sybase Enterprise Server Embraces Automation

BY EDWARD J. CORREIA

There's an operational gap with today's complex enterprise information systems: Database software can handle fast-changing data, but human administrators have trouble keeping up. That's according to database developer Sybase Inc., which claims to address this problem with its Oct. 6 release of Adaptive Server Enterprise 12.5.1. The company says it can automatically adapt to changing transaction patterns to optimize server performance. The new version also lets developers expose stored SQL procedures as Web services.

Human resources lag behind system improvements, says Sybase's Traubitz.

"The ability for systems to handle the growth in storage and transactions mechanically has been moving along nicely," said Tom Traubitz, Sybase's senior group product marketing manager. "But human resources for systems maintenance, backups and keeping systems available have lagged behind."

Traubitz claimed the new database server handles these problems with features like automated database expansion, memory allocation and job scheduling, all while the system is online. "These functions and adjustments of other parameters typically used to require a [database administrator] to configure. We've eliminated or automated many of these tasks to reduce the number of times a human being has to intervene."

Traubitz said that for administrators reluctant to give up system control, most of the automated functions can be configured to perform within set parameters. "They can control the functions to the degree they wish. Think of it as power steering in your car. It doesn't take away your control, but makes it easier to manage a couple of tons of vehicle."

Also of interest to developers is the ability to expose stored SQL procedures as Web services, which Traubitz said can reduce the amount of custom coding that was required before. "You can now allow [apps] or processes like a CRM system to log in and interchange data with the database."

Sybase Adaptive Server Enterprise for Linux, Unix and Windows pricing starts at US$1,495 per server, including five user licenses. ▮

NEW AMBERPOINT SOLUTION TAKES EXCEPTIONS TO APPLICATIONS

BY YVONNE L. LEE

In late September, Web services management provider AmberPoint Inc. introduced a software package designed to reduce exceptions—the errors that come about when a program doesn't have the code to handle an unexpected operation or condition.

AmberPoint's Exception Manager is designed to detect operational errors and unusual business cases before they can cause computer disruptions or impact the costs to a business.

It tries to pick out problems that may not have been anticipated during the development or testing phases of an application.

Vice president of marketing Ed Horst gave the example of an airline that had to honor tickets for $25 after such a promotion mistakenly appeared on its Web site. With Exception Manager, a user could specify a threshold below which the application would not accept a value, and then direct the Web service to take some kind of corrective action.

Although the Exception Manager is designed to collect information about Web services as they are running, organizations must manually define what an exception is. Users can define exceptions based on SOAP faults, error messages or faulty business logic.

Organizations would create the gross overarching rules and then modify them over time, Horst said. "You tend to [make rules] broadly at first and more particularly over time," he said.

When users enter exceptions into the Exception Manager, they can configure it to send e-mail messages to managers for higher-priority errors or to simply log the errors that are less damaging.

Exception Manager collects information from throughout a Web service system to help pinpoint where the error occurred. It works by placing agents in the Java or .NET system, as well as in the database and corporate information packages, such as those from SAP.

Pricing starts at US$50,000 and does not vary based on the number of servers, because the Oakland, Calif., company said that would discourage scaling the applications. However, the officials declined to state the basis on which it did vary. ▮

News Briefs

COMPANIES

Key3Media Group Inc., the spinoff from Ziff-Davis that owns the Comdex and Networld+Interop shows and also produces JavaOne for Sun Microsystems Inc., has renamed itself **MediaLive International Inc. . . . InstallShield Software Corp.** and **Intraware Inc.** are offering a Web-based software updating system that combines InstallShield's installer with Intraware's access controls. The purpose is to be able to deliver software patches quickly . . . Three divisions of the Swedish firm **Enea Data—OSE Systems Inc., Enea Realtime** and **Enea TekSci**—have been merged into one division, called **Enea Embedded Technology**. Enea's RTOS kernel still will be called OSE, and the company has released a version of OSE and a set of board support packages for TI's OMAP ARM and DSP cores.

PRODUCTS

DataDirect for SQL/XML is the latest tool from DataDirect Technologies Inc. The new utility lets SQL queries create XML structures using the SQL/XML extensions defined by the SQL 2003 standard. The utility includes a graphical query builder . . . Duvessa Software has released **Estimate Easy Use Case**, a tool that converts use-case data from IBM's Rational Rose or other XMI-compliant modelers into use-case points, and from there, can provide manpower estimates for a project. The software costs US$39.99, or $89.99 with import capabilities . . . Atalasoft Inc. has released a version of its **dotImage** imaging component for .NET. Previously offered only for ActiveX, dotImage is a class library with functions for cleaning up scanned images . . . Helsinki, Finland-based Aivosto Oy is offering version 7 of **Project Analyzer**, a static analysis tool for Visual Basic. The new version works with VB.NET 2003, and can delete code that's not needed at runtime, such as invisible controls and uninstantiated classes. Project Analyzer costs US$199 . . . Version 4 of **Ch**, the C/C++ interpreter from SoftIntegration Inc., adds syntax highlighting to its vim editor for Windows, and has an improved GTK+ toolkit . . . DataPower Technology Inc. is offering firmware updates for its **XS40 XML Security Gateway** and **XA35 XML Accelerator** appliances to allow them to validate and accelerate the WebSphere MQ messaging protocol. DataPower licensed the protocol from IBM . . . The Apache Software Foundation's Jakarta project has released version 2.3 of its **Turbine** Web application framework; version 1.3 of **Regexp**, a regular expression package written in Java; and version 2.0 of **Commons Lang**, a set of Java libraries for enhancing classes in java.lang and java.util. These are primarily maintenance releases . . . InstallShield Software Corp. has replaced its **InstallShield Developer** and **InstallShield Professional** with a new product, **DevStudio 9**. This Windows-only installer builder also can target Windows CE and Windows Smartphone devices, and can plug into Visual Studio .NET. The software costs US$1,199 . . . AppForge Inc. has released a version of its **MobileVB** tool suite, which offers Visual Basic for non-Microsoft platforms. Version 4 now has runtimes for Palm OS 5 and Nokia Series 60 devices. The company also has decided to offer the runtime at no cost—a shift in policy. The IDE costs US$899 per seat . . . Teamplate Inc. has updated its **Teamplate for .NET** collaborative workflow software. Version 4.0 is now compatible with Visual Studio .NET, and can bind Teamplate actions into XML data objects . . . Neon Systems Inc. is offering a new host integration product, called **Shadow Event Publisher**, that enables mainframe events to be captured in real time and pushed to business processes, using HTTP and message-queuing protocols, running on other servers.

PEOPLE

After reported disagreements with Motorola Inc.'s board, chairman and CEO **Christopher Galvin** resigned, saying he would leave when a successor is named . . . PalmSource Inc. has named **Larry Slotnick** as chief products officer and **David Limp** as SVP of corporate and business development. Slotnick had been with Palm; Limp had been chief strategy officer of Liberate Technologies Inc. . . . **Volker Dolch**, a microprocessor designer, inventor of 16 UPC bar-code algorithms, and founder of a company that made industrial-strength portable computers, passed away in mid-September. He was 59. ■

A Help in Gaining Control of Help

Updated RoboHelp focuses on file management

BY ALAN ZEICHICK

The latest version of RoboHelp, to be released in November by eHelp Corp., expands the multi-platform help authoring system to be able to reuse data in formats such as PDF and XML, and adds new collaborative and data-sharing capabilities.

"The biggest new feature is content management," said Mike Hamilton, product manager for the software.

According to Hamilton, large, complex help and documentation projects can have tens of thousands of distinct files, and dozens of help authors, and keeping all of those documents and graphics organized requires sophisticated content-management functionality. "That's a lot of data to keep control of," he said, "so we're including new source-control technology with RoboHelp. There's no extra cost; it can be used locally by a single author, to provide version control, or it can be installed in a network area so that multiple authors can access it."

There are no set limits to the number of authors who can share a specific project, Hamilton said, but only one author can be using a specific file at a time, due to file-level locking. The content-management feature, which is called RoboSource Control, is built into RoboHelp X5. Alternatively, he said, developers can now use existing source-control systems like Borland's StarTeam or Microsoft's Visual SourceSafe to provide versioning and document control.

The other big push is to improve content reuse, such as being able to import external documents and data files and use them to build RoboHelp help projects, or to export RoboHelp projects to other media. While RoboHelp already imports graphics and common types of data files such as Word documents, Hamilton said, the new release extends import/export to Adobe's Portable Document Format, XML and Sun's JavaHelp 2.0 format.

RoboHelp already had allowed XML output, said Hamilton. The new import features can work with common XML schemas, and also can work with XML documents that aren't already styled, he said. "You can use the RoboHelp editor to build a handler, and then import your own custom schema. But out of the box we support XHTML and DocBook, which are the two most common [schemas] for technical writers."

The PDF import features were much trickier, according to Hamilton, because "if you crack open a PDF file, there really is no style data. It's just a huge amalgamation of individual character styles [designed] to cause an on-screen representation. To import it meaningfully, we need to be able to have style information to decide what's a heading, what's body text, and identify other information."

The solution, he said, was to develop algorithms that analyze the PDF document structure and build an on-the-fly style guide. "If 90 percent of the document is Arial 10 point, there's a good bet that it's body text," he said. "That allows us to pull in a 30-page PDF document and intelligently break it into topics for a help system. It's not imported as bitmaps; it's actual, editable text. If it's a bulleted list in PDF, it's a bulleted list in RoboHelp."

Examples of when a help author would want to use that feature would be when the source document for the PDF was not available, he said, or if someone is incorporating other, existing documents into an online document or reference.

RoboHelp's support for JavaHelp 2.0 was held up due to issues with the specification, said Hamilton. "Sun finally got off its horse after a year-and-a-half beta and released the thing." The JavaHelp 2.0 specification, which Sun's Java Community Process called JSR-97, was initiated in January 2001, and was expected to be released in October of that year, but it was finalized only in late August 2003.

Pricing for RoboHelp X5 was not available at press time. ■

The new PDF import capability can convert documents into HTML or treat their pages as bitmap images.

More little black lines than ever before.

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A Foothold in Java GUI-Building Market

Instantiations acquires Eclipse plug-in SWT Designer

BY DAVID RUBINSTEIN

Instantiations Inc. has bought itself a Russian.

More specifically, the Java tools company late last month acquired SWT Designer, an application created by Konstantin Scheglov, to ante itself into the nascent Java GUI-building tools market. Instantiations and Scheglov, a regular contributor in the IBM's Eclipse community, will continue to have an ongoing relationship as the product is developed, according to the company's CEO, Mike Taylor. The terms of the acquisition were not disclosed. Instantiations sells the CodePro line of Java programming tools for IBM's WebSphere and Eclipse IDEs.

"We are trying to stake out a strong position in that area," Taylor said. "We intend to start a new strategic product line of Java GUI-building tools." Taylor said Scheglov indicated to Instantiations that there are 8,000 users of SWT Designer.

SWT Designer was written to be a plug-in to the Eclipse open-source development framework, and Taylor said Instantiations intends to offer a Standard Widget Toolkit GUI builder for use atop IBM's Java IDEs, as well as a Swing/Abstract Window Toolkit (AWT) version for those who want strict adherence to Sun's Java specifications.

A 'RELIGIOUS WAR'

As for what Taylor called the "religious war" between the SWT and AWT camps, Instantiations intends to steer clear of the battle. "We'll straddle the leading Java GUI-building technologies," he said. SWT, he explained, supports native operating-system widgets, while Swing requires an emulation layer to maintain its cross-platform functionality.

"Natively, you get better performance and exactly the look and feel of the underlying operating system," Taylor said. "With Swing, you get more cross-platform portability, but it will look slightly different than a Windows user is used to, and you also have that emulation layer to go through, which impacts performance."

At the time of SWT's introduction, Java developers were concerned that SWT GUIs would not run on other platforms. But, at their core, Taylor said, they're all still Java code, and he noted that Eclipse supports Swing.

Taylor said Instantiations, whose founders have roots in Smalltalk, wanted to move into the Java GUI market and that finding Scheglov saved the company months of work. The decision, he said, came naturally to the company. "Smalltalk companies had the same religious war between native widgets and emulated widgets," Taylor said.

SWT Designer works in Eclipse 2.1 and IBM WebSphere Studio 5.1 on Windows or Linux, according to the company. It sells for US$199. ▮

CA Associates With Web Services

Approach involves new and modified software, hosted offerings

BY YVONNE L. LEE

Computer Associates International Inc. is taking advantage of its background with management and security and will use that as the basis of a three-pronged Web services approach, CA officials told SD Times.

Those efforts will include creating new Web services-based products, modifying existing applications to be Web services, and offering management and security as a hosted offering, said Dmitri Tcherevik, director of Web services at the Islandia, N.Y., company.

CA began its move into the Web services arena in July when it introduced the Unicenter Web Services Distributed Management (WSDM) application, which is promised for general availability by the end of the year.

The company added the product to its management software because Web services need to be managed in a different way than traditional network management products, Tcherevik said.

"Web services have their own messages. They must be managed based on them," he said.

SECURING SERVICES

Another product, yet to be named, will combine Web services management and security. It will be formally introduced next May, and is scheduled to be available in the second half of 2004, Tcherevik said.

CA plans not only to develop new Web services management and security software, but also to modify its existing line into Web services. That way, Tcherevik said, customers will be able to integrate the management products into their own corporate portals. In addition, applications, by definition, will be able to communicate with one another. For example, in the case of Unicenter ServicePlus Service Desk, which was released as a Web service earlier this year, it now can receive service tickets that CRM products create upon reaching certain specified thresholds.

CA also is planning to offer network management as a hosted Web service. Tcherevik said his company can be successful offering hosted management, when other hosted applications died on the vine, because customers don't see network management as a bet-the-business type of function.

In addition to developing and hosting Web services, CA is working with standards bodies to extend the specifications, Tcherevik said. In March, CA teamed with a dozen other companies to promote its WSDM specification as an industry standard. Version 1.0 of the WSDM, which the vendors have submitted to the Organization for the Advancement of Structured Information Standards (OASIS), seeks to define an architecture for managing distributed resources, based on the W3C's Web Services Architecture. It is expected to be completed in January 2004. ▮

Taking a Composite View of Business Info

Start-up integrates via enterprise abstraction solution

BY DAVID RUBINSTEIN

A new company with a veteran chairman and CEO this week is launching a product into the enterprise information integration space currently held by BEA Systems Inc., IBM Corp., MetaMatrix Inc. and a few other vendors.

Composite Software Inc. is aiming to help companies cull structured data and unstructured information from different sources in different forms and use it in a way that makes sense to them semantically—in other words, a new type of ROI: return on information. Composite tackles this problem by creating an abstract layer above the data stores, allowing people to access all kinds of information without worrying about adapters and connectors into databases or enterprise applications.

"Access to data is critical to any computing paradigm," explained Jim Green, Composite's chairman and CEO. Previously, Green was involved in writing the CORBA specification at Sun and later founded Active Software, which was acquired by WebMethods in May 2000.

"SQL, for example, predates any kind of a service-oriented architecture. For that to work, there are two key points. One, you have to provide access through standards, not proprietary APIs. And two, you have to present the information how the consumer wants to see it, not how the software stores it. You need an abstraction layer between the schema and the application. Here, we call that a view." A drag-and-drop interface simplifies creating the views, or data models, Green said, noting that changes to the data represented in the view will change the underlying data in its store.

These views are created and stored in the Composite Information Server, which was set to be announced on Oct. 13 as being generally available. By creating views into PeopleSoft or Siebel applications, Oracle databases, Word documents and third-party Web services, users can get aggregated data from multiple sources that can be limited by role-based controls and customized to how a user might want it, such as viewing all orders from customers for more than $10,000, according to Mike Abbott, who founded the company two years ago and serves as CTO. "You don't want to expose all the data to everyone all the time," he said.

Once created, such as by defining "customer" and linking things such as name, credit rating or buying history to the title, these views can be reused across different data sources and in different forms, such as a portal application or an Excel spreadsheet, Abbott explained.

He said Microsoft's Office 11 suite makes a suitable presentation layer for the Information Server. "Once you connect the view into the data, you can wire the view into Office 11 with five clicks of a mouse," he claimed. Once in Excel, for instance, the data can be manipulated; or, he said, the view can be dropped into a portal application or a Web page.

Caching is an important part of the Composite solution, Abbott explained, because applications either might not be able to hit the desired data source at runtime, or the user might not want the application to hit a slowly changing data store every time a transaction comes through.

"This provides for a high quality of service," he said. "It provides the ability for a user to say, 'Between the hours of 9 and 5, don't query the data source, just cache it.'"

FROM VIEWS TO GRIDS

Green said that Composite sees the opportunity to build views on top of views, and these building blocks can be used to create what Green calls data services grids, whereby a network of Information Servers are shared across the enterprise, and users go to the network to get data, not the data sources. "This part is not yet done," he said. "We expect to complete the vision in the next year or so."

Green said he is not sure if the company will begin to sell prepackaged views with the server, or try to build a community of users that can share views "like a big swap meet."

Although MetaMatrix, BEA with Liquid Data, and IBM with its DB2 Information Integrator released in February already have staked out a space in the market, Green claimed Composite differs from those solutions.

"IBM is a big, complex product with a high price point," Green said, "while MetaMatrix takes a very academic view. We try to make ours approachable. Instead of calling it a metadata abstraction layer, we call it a view. I think we're more pragmatic."

Green concluded, "Also, MetaMatrix wants you to put your entire life cycle into their architecture; we have a smaller, lighter weight version." Green did not comment directly on BEA's Liquid Data. ■

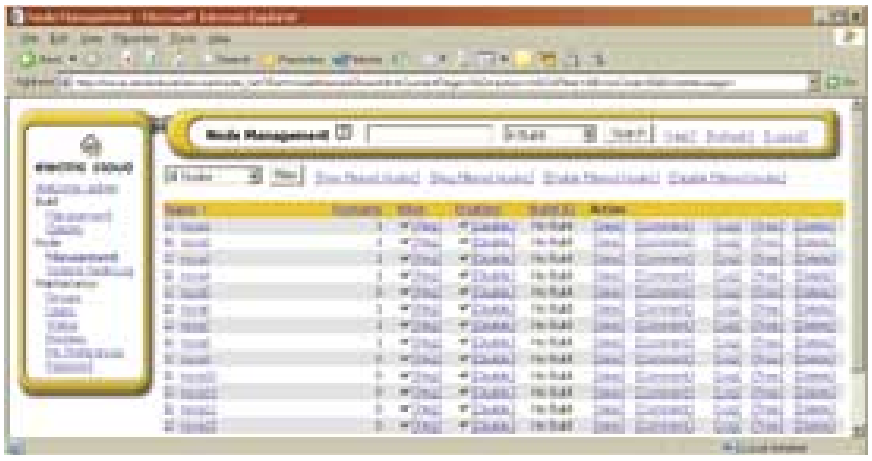
Electric Cloud Distributes Software Builds

BY ALAN ZEICHICK

Saying that software builds take too long to execute, Electric Cloud Inc. has released its eponymous replacement for Microsoft's nmake and GNU's gmake. Electric Cloud 2.0, the first commercial version of the product, is designed to distribute builds across a cluster of dedicated servers and reduce the build time by an order of magnitude. Version 1.0, which came out in November 2002, was released only to a few pilot clients, according to the company.

John Ousterhout, founder and CEO of the company, said the goal is to reduce the write-build-test cycle. "How can you get from your source artifacts to your compiled executable, ready for testing," more quickly, he asked, adding that while a lot of attention has been paid to improving code editors and test tools, "the build space has been pretty much untouched by commercial ventures until now."

When asked about commercial build products such as Cataylst's Openmake, as well as popular open-source tools such as Apache's Ant, which are frequently built into commercial tools, Ousterhout dismissed them as "little things" that some developers use. He claimed that those products aren't able to handle applications that have long build times, which often exceed four hours, and which actually can be 10 hours or more, on a daily basis. "We've talked to companies with build times in the 40 to 80 hours range," he said.



Electric Cloud's node manager allocates server resources to specific build jobs.

Thus the need for acceleration, says Ousterhout, who was the original author of the popular Tcl scripting language. "We take pieces of the build, spread them across the cluster of inexpensive rack-mount computers, and thereby accelerate the process. We can use dozens of machines, and we're seeing 10 to 20 times reductions in build time." The process isn't completely scalable, he admitted: "For 10x [improvement], we'd need about 15 servers." That means, "we can get rid of the overnight build, and turn it into a coffee-break build."

Electric Cloud, Ousterhout said, looks just like the common make utility, specifically gmake and nmake. "We have a drop-in replacement, called Electric make or emake. It gives you the same results, even down to the output logs. The difference is that those other versions run their compilation sets, typically sequentially, on the machine where you run make. We don't do that; instead, we run the compilations in parallel on that cluster of cheap servers."

Electric Cloud has solved the technical limitations that have limited past efforts to parallelize builds, Ousterhout claimed. "Parallel builds, of course, aren't a new idea. There have been parallel versions of make for five or 10 years, but by and large those tend not to work very well. You can often get a speedup of two or three times using them, but it's difficult to get more because the parallel makes tend to break the build."

The problem, he said, is the dependencies. Some files assume that others have been recompiled earlier, but those dependencies, sometimes expressed in file headers, can't be seen by looking at parameters of the build's makefiles. "If you try to do a parallel build, you end up being overoptimistic, building things in the wrong order, and you get a product that appears superficially to be right, but which doesn't reflect the sources it was compiled from."

How did Electric Cloud handle this problem? "The secret sauce in our product is a set of technologies for managing the dependencies. We analyze the build, as it's running in parallel on the cluster, and figure out the true dependencies, and automatically reorder the build on-the-fly to ensure we produce the same results [as a sequential build]."

The software does so by watching the file system, rather than the contents of the makefiles, so it can see which pieces of source code invoke other pieces. "As the compilers and other tools access other files, all of those pass through our file-system drivers," he explained, "so we can see that a header file was read in this job, but modified by a later job. The central build machine analyzes that, and [then switches the order]," with results optionally viewable on a cluster management application.

Ousterhout said that Electric Cloud is merely the first of the company's planned tool set. "We have ideas for follow-on products that will make the process more manageable, more understandable, more predictable and so on." He implied that some or all of those products will run across the same server cluster as the build accelerator.

Electric Cloud 2.0 runs on Linux, Solaris and Windows, and is compatible with gmake, nmake and also Unix System V's make tool. Pricing depends on the number of users and number of nodes in the server cluster, and starts at about US$50,000, Ousterhout said. ▮

AMD

◂ continued from page 1

desktops. Both of these models include a 64-bit memory interface and 1MB of onboard L2 cache, giving a peak 6.4GB/sec I/O bandwidth. The higher-end Athlon 64 FX-51 processor, designed for gamers and for what the company called "cinematic computing," has a 128-bit memory interface and a 1MB L2 cache, and 12.8GB/sec peak I/O bandwidth.

The Athlon XP 32-bit processors will continue through 2005, says Ruiz.

Prices of the processors, in 1,000-unit quantities, are US$278 for the model 3000+, $417 for the 3200+, and $733 for the FX-51.

Cinematic computing is AMD's term for interactive graphics, rendered on-the-fly for gaming, that it says would appear to be as realistic as a movie.

The launch event was focused on gaming, which is one of AMD's traditional strengths. In the consumer arena, games benefit most from faster computers, which improve the quality of screen graphics and can offer potentially better simulation realism. Most of the hardware and software partners onstage with AMD CEO Hector de J. Ruiz were from the 3D graphics, gaming and entertainment industries.

However, the company indicated that the processors also will be marketed toward businesses, particularly those that might wish to deploy a single processor architecture for both 32-bit and 64-bit applications. Ruiz was short on specifics for the corporate market, however, and no business applications were demonstrated during the launch.

Ruiz insisted that AMD is not abandoning its traditional 32-bit processors, and said that the Athlon XP, the company's 32-bit flagship, will be continued at least through 2005.

AMD is beginning to get some traction for the AMD64 architecture, at least from other major vendors in the 64-bit space. Sun is working with AMD to port a native Java Virtual Machine for Linux and Windows to the AMD64 architecture. Microsoft used the AMD launch event to announce a 64-bit version of Windows XP for the AMD64 architecture, and to distribute a public beta of the operating system. General availability is promised for the first half of 2004.

According to a Microsoft statement, the new operating-system version "takes advantage of the AMD64 architecture to enable compatibility with 32-bit applications without a loss of performance in nearly all cases, helping protect customers' current and future technology investments."

All versions of the Athlon 64 processor can run 32-bit versions of Linux and Windows, although 64-bit apps can't be run under those operating systems. There are also several 64-bit distributions of Linux available for the AMD64 architecture. ▮

THE 64-BIT DESKTOP

Sixty-four-bit processors aren't exactly unprecedented on the desktop, but previously have been focused on high-end technical workstations, such as Sun Microsystems Inc.'s Blade computers running the UltraSPARC III processor. But Sun workstations are hardly mainstream computers on corporate and consumer desktops.

Just barely beating AMD to market with a 64-bit consumer desktop is Apple Computer Inc., whose PowerMac G5, based on the IBM PowerPC G5 processor, also can commingle 64-bit and 32-bit apps. The PowerMac G5 began shipping in mid-August. However, Apple does not yet offer a notebook in that format.

Missing from the desktop fray is Intel Corp. The company's 64-bit processors, the Itanium 2, have been focused on servers, although a new version of the chip, designed for workstations, has been announced. The Itanium 2, unlike the Athlon 64, cannot run 32-bit *x*86 applications at full hardware speed along with 64-bit applications. Intel has not publicly stated plans for offering 64-bit consumer desktop and notebook processors.

AMD CEO Hector de J. Ruiz indicated that since the Opteron processor's initial shipments in April 2003, AMD has shipped "tens of thousands" of processors. *–Alan Zeichick*

SQL 2003

◂ continued from page 1

standard, is hopeful that the new spec will serve to unite major database developers IBM Corp., Microsoft Corp. and Oracle Corp., all members of ISO.

"The rising interest from the big three is to make their products fully compliant [and] to come to an agreement on extending the SQL dialect for XML, because they are all in the group," he said.

Persson was with the ISO before the release of SQL 99 in 1999, and is largely credited with identifying the huge number of errors in that spec, which he said the new version seeks to correct.

"The main [intention of] SQL 2003 was to correct the 99 standard. If you look at the technical corrections for SQL 99, it's currently 428 pages. Most work has been on making it correct. Core SQL features are frozen and are exactly the same as [those in] 99," he said.

The same, he said, with two major exceptions: the new XML syntaxes and a standardized way to interface with Unicode. "With the Internet, internationalization is coming strongly. Developers want to make applications which are not just portable to different computers but that work in different countries and support different languages. Unicode [provides] one code map for all languages."

'SQL 2003' corrects the 99 standard, says Upright's Persson.

According to Sandeepan Banerjee, director of product management for Oracle's server technologies, "SQL 2003 is creating standard extensions to inspect and extract [data] from XML documents," he explained, adding that the extensions would become organic parts of a standard-compliant SQL engine.

While the new standard includes features developed elsewhere, Banerjee said that much of the work going into SQL 2003 was developed at Oracle. "What has emerged from the committee was a consensus of the various approaches different vendors have taken. But if people look at what Oracle has been doing in 9i, substantially that is the approach that has been adopted. Oracle was doing it, and now it has become standard." Banerjee said that some of the XML features in SQL 2003 are in Oracle 10g, in beta since May, and that "a substantial part" of the new functionality will be in the general release, expected later this year.

But Don Deutsch, Oracle's vice president of standards strategy, complained the spec should have gone further. "We're disappointed that the standard does not have more XML functionality," he said."What we have in the standard today is publishing functions. We can publish SQL values into XML, but we can't take XML data and manipulate and query it with SQL."

Deutsch cited quibbling among rivals as the cause. "Frankly if some of our primary competitors were ready to agree to a broader range of functionality, it would have been in the standard. So it looks like we have one side of the coin."

Tom Rizzo, group product manager for Microsoft SQL Server, who works closely with Microsoft's ISO working group, said such conflicts are a natural part of the standards development process. "In any working group, where you have really smart people working on a really hard problem, they all come up with different solutions they each think is best. Then it's a matter of negotiation and compromise. And the standards process has to eventually be shut down; otherwise there would never be any standards."

Rizzo said that while some features in SQL 2003 were locked down too late for Microsoft to implement them in the beta version of the next release of SQL Server, codenamed "Yukon," the software does implement parts of the standard such as XML data types, as well as proprietary XML publishing extensions released with SQL Server 2000.

"For good compatibility of applications moving forward, we will continue to support our proprietary extensions and will add the standard extensions as well. So customers will have the broadest choice." Yukon is scheduled to go to public beta in the first half of 2004, Rizzo said, and is set for release in the second half.

Despite the hair-splitting, Deutsch sees the developments as a positive step and is hopeful the standard will unify disparate efforts among competitive database developers. "They have all been at the table and actively engaged. If you have multiple ways of doing things, you'll end up with multiple communities of skill sets and applications that are not as easy to move from one environment to another."

IBM, the third major database provider, declined to be interviewed for this story. ▮

BENCHMARKS

◂ continued from page 1

showing of irreparable harm is entirely speculative," and "the showing of likelihood of success is equally thin."

Sonic CTO Gordon van Huizen praised the victory, saying, "Customers deserve broad access to information about how a product performs." Vendors, he continued, have been so restrictive with the terms of their licensing that it has been difficult for potential customers to speak with existing customers to find out how a product works for them.

Part of the reason for the vendor restrictions, believes Kaivalya Dixit, president of Standard Performance Evaluation Corp. (SPEC), is that unless the benchmarking is carefully controlled, the results can vary widely. "I can change 10 lines of benchmark code and get totally different results," he said. "But if you make a complete and full disclosure of what you used and how you used it," he added, the results are valid.

Vendors, he said, do not want to make such full disclosures of their products, as perhaps they have an optimization such as parallel processing or concurrency that gives them a competitive advantage.

Companies get involved with SPEC, or another group called Transaction Processing Performance Council (TPC), to ensure the benchmark tests are standardized and legitimate, according to Tom Rizzo, SQL Server group product manager at Microsoft Corp.

"This prevents the apples-to-oranges comparisons," Rizzo said. "Customers like that there are standard benchmarks. Otherwise, they would have to sift through a lot of misinformation." Rizzo indicated that Microsoft's license for SQL Server does not restrict benchmark testing, but only blocks publication of the results. "We want to make sure they're legitimate; we're trying to protect customers from not-valid information."

Because the TPC has a range of benchmarks, Rizzo explained, vendors can't tune their products for just one test. Also, the impartiality of a third party doing the benchmark tests lends validity to the whole process. "For safety benchmarks in a car, would you want Ford or GM to do their own testing, or an independent body?" Rizzo asked.

COMPETITIVE ISSUE

Yet Atul Saini, CEO of Fiorano Software Inc., claimed it is not the fear of varying results that leads vendors to restrict the publication of benchmarks. "It's a stick to beat up the competition," he insisted. "It's control over the sales process. To have a restriction [against publishing benchmarks] in licensing agreements puts clouds around the process and scares people. The only loser is the consumer."

Saini admitted that Fiorano, like other vendors in its competitive space, has benchmark restrictions in its license, but said he will be dropping that clause. Sonic's Tim Dempsey, vice president of marketing, also promised that benchmark restrictions will be coming out of his licensing terms. "We are in business to win business," he said. "The publication of results was done to raise awareness of our performance advantages. We don't want to be accused of similar practices."

To Saini, that is good news, because he claimed that Fiorano soon will publish a benchmark that shows its messaging middleware to be faster than the Sonic product. "Will they be willing to allow our benchmark against their 5.0.1 product to be published? I'll bet you Sonic will refuse." Saini said Fiorano plans to benchmark its JMS server offering against the next version of SonicMQ. "Sonic couldn't do much to us if we posted our benchmark. They'd look hypocritical." ▮

WS-I TOOLS

◂ continued from page 4

they looked and saw there were still ambiguities." The group then resolved these ambiguities so that there would be a single way to interpret them.

If there is a fault with the Basic Profile, it's that it *is* basic, dealing with how messages are passed, said Ron Schmelzer, senior analyst at Zapthink LLC, a Waltham, Mass., research firm specializing in Web services. "Even though they can talk at the lowest level, they still can't talk at the highest level," he said.

New profiles need to be worked out for security, which is one of the biggest hurdles to widespread adoption of Web services, particularly those that are exposed to the Internet, said Schmelzer.

In fact, the organization is working on a profile called Basic Security, which is based on OASIS' WS-Security standard, said WS-I's Glover. Both are due in 2004, but Glover declined to pinpoint a more precise time frame.

Another problem is that although the WS-I has released the profile for interoperability, there is no formal testing body to ensure compatibility, and the burden of testing rests with the final developers.

Members of the consortium probably would not have funded a testing body, and it would have taken time for such a body to gain credibility, said Whit Andrews, Gartner Inc.'s research leader for Web services. "Let's say that we said there must be an independent testing body. If there must be an independent testing body, somebody's got to set it up and it's got to be funded," he explained. "I don't see enterprises leaping up to fund that right now. Would they take it to OASIS? OASIS develops standards. Would they take it to the W3C? The W3C is really about strategic development of the Internet. You have to have a new certification body emerge from nowhere and gain credibility and get funding."

The WS-I has left open the possibility of an independent testing firm springing up.

"We're talking with other organizations that are in the certification business," said WS-I's Glover, although he would not specify which groups are in talks. "If other folks see a business opportunity focused on testing people's products based on the profile, they can do that."

In the meantime, and for the foreseeable future, end users will be able to assure themselves of a strong level of compatibility of their multivendor Web services by running tests themselves. ▮

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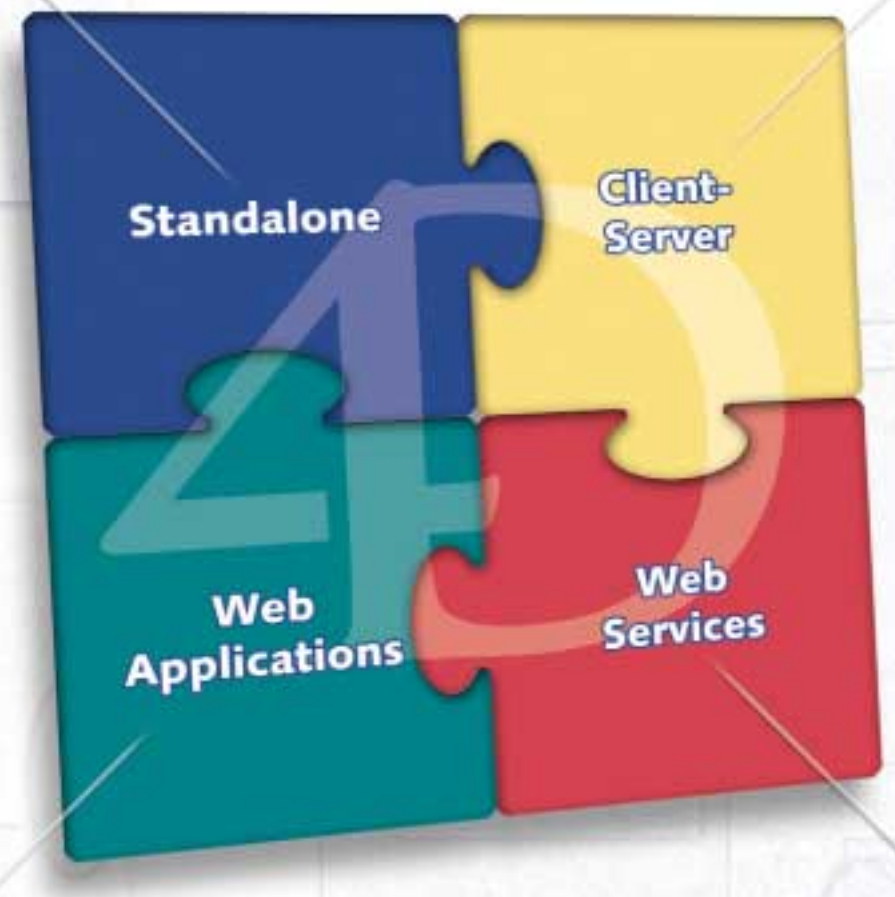

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Metrowerks Gets on Board Support

Claims new platform suite elevates BSP development from 'black art' to mainstream

BY EDWARD J. CORREIA

Development of board support packages, the first hurdle of any embedded project, can be a painstaking process involving low-level languages and lots of trial and error. Metrowerks, the software division of Motorola Inc., claims to simplify the problem with Platform Creation Suite 3.0, released in late September.

According to David Beal, the company's director of embedded Linux tools, the new tools mainstream a process that just a few years ago was thought of by some as mystical. "Four or five years ago, Linux porting was seen as a black art. At that time, there were very few people who were really good at porting Linux kernels. Years later it's a different story. Now you have companies all over the world who can do it."

Board support packages (BSPs) in general include a version of an embedded operating system ported to the specific target hardware, and drivers that address the board's peripherals. Linux BSPs, Beal said, also include a few applications, such as Telnet and FTP, along with GNU build tools. Some vendors also supply a deployment method. A custom BSP must be developed for any board being targeted.

PCS 3.0 permits developers to modify, configure and implement Metrowerks BSPs, or to create their own from scratch. "We're trying to leverage all the developers who are able to create their own Linux ports today," Beal said of the tools' positioning. The company offers BSPs targeting designs based on ARM, ColdFire, MIPS, PowerPC and SH processors; the BSPs are free.

Beal described the four-step BSP development process. The first two, kernel and GNU import, are optional steps that allow developers to replace the tools included with the kit with their own customized port or build tools, or ones downloaded from other Linux distributors, all of which can be used within the PCS framework, Beal said. Metrowerks Linux is based on kernel 2.4.21.

The third step involves the Skeleton Deploy component, so named because it offers a bare-bones deployment building environment that can be customized for nonstandard boards. "Once the software has been built, you have to move it to the target somehow. [Deployment] is board-specific because some have compact flash, others have networking or serial ports. Skeleton is a generic [environment] to support boards we have never seen before." This step also can be bypassed for Metrowerks BSPs, which are loaded through a GUI.

The final step is to create a distribution CD. "BSP Export Wizard captures all the changes you've created locally on your development machine and creates an installable ISO image for CDs." Modified packages may be freely distributed without royalties.

Beal said that despite the fact that some Linux developers charge as much as US$40,000 for such porting services, allowing Metrowerks customers to distribute the BSPs for free is not leaving money on the table. "Historically, we haven't seen a lot of money in Linux porting." Beal hopes that free BSP distribution will create demand for the tools that can configure and modify them. "They will act as a channel for Metrowerks solutions. You sell more hardware; we sell more tools."

Set to be generally available on Sept. 29, Platform Creation Suite 3.0 for Linux OS will cost $6,240 per seat, including one year of support. ■

The BSP Export tool creates a CD to aid in distributing new packages.

'ALL ABOARD'

Platform Creation Suite 3.0 provides four new components for developing and deploying BSPs.

- **Kernel Importer** – allows included kernel to be replaced with customized port
- **GNU Importer** – permits kernel-specific compilers or other build tools to be used within PCS framework
- **Skeleton Deploy** – provides a customizable BSP deployment mechanism
- **BSP Export** – creates installable CD image for BSPs

Source: Metrowerks

BAE Systems Enters General RTOS Market

CsLEOS marketed to medical, transport, industrial control apps

BY EDWARD J. CORREIA

Watch out, Green Hills and Wind River. British aviation software developer BAE Systems in mid-September entered the general real-time operating system market with CsLEOS, which the company is heralding as the first off-the-shelf commercial offering certifiable under fault-tolerance specifications required for many military and aerospace applications.

BAE's RTOS can be used in many industries, says Dedek.

BAE, which was established in 1949, is broadening its traditional military and aerospace marketing efforts to include medical, transportation and industrial control systems. A POSIX-compliant version is planned for next year.

According to Milan Dedek, products manager for CsLEOS, developers in a wide range of markets stand to benefit from the operating system's fault tolerance capabilities. "With safety-critical systems, you want to know what your fault responses will be. So if an airplane's engine dies, an engineer can perform a fast restart or kick off a redundant process." For medical applications, he said, CsLEOS' fault tolerance can be applied to life support and life-sign monitoring of critical patients. "For example, you might want a heart monitor running on a different system than other [less critical] system monitors," he said.

Dedek claimed that unlike competitive RTOSes from Green Hills and Wind River, applications written for CsLEOS partitions do not require linking with the kernel, which enables new or modified applications to be installed without recompiling the entire system.

CsLEOS has been in use in BAE's avionics systems since 2000, Dedek said, and was made available commercially for the first time in July 2002. "Developing and maintaining an operating system is expensive. So by making it commercially available, we help defer some of those costs." Prior to that, Dedek said, BAE had been building a custom RTOS for each application—an expensive endeavor perhaps, but not without some recompense. "You might not think that one of the core competencies of an avionics company would be in operating systems, but it turns out that it is."

CsLEOS developer licensing starts at US$50,000 per project, including development tools, OpenGL 2D and 3D graphics drivers, and a GUI-based RTOS configuration tool. ■

CsLEOS taps into OpenGL to display avionics data in the cockpit.

WASABI RELEASES OPTIMIZED XSCALE COMPILER

BY EDWARD J. CORREIA

Embedded systems developer Wasabi Systems Inc. in mid-September released an optimized GNU toolchain for Intel's XScale processors, including an enhanced compiler that it claims offers performance improvements to generated application code. The compiler enhancements will be incorporated into the GNU Compiler Collection 3.4 later this year.

According to a Wasabi spokesman, Intel hired the company to convert its existing ARM processor pipeline description to a deterministic finite-state automation (DFA) pipeline description, which minimizes latencies due to instruction stalls. Intel is now distributing the enhanced gcc compiler to its beta developers and software partners.

Wasabi, which develops and markets NetBSD, a Unix-based multiplatform operating system, expects to release a commercial version of the enhanced GNU toolchain later this year. ■

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Greg O'Connor, President

Playing With the Pure Plays

The new world order of general-purpose application servers is taking on the entrenched integration giants

BY JENNIFER DEJONG

Back in 1999, developers on Andy Miller's team had a major integration challenge on their hands. To keep up with Corporate Express Inc.'s rapid growth, they had to enable the company's critical applications to carry out key business processes, minimizing the need for paperwork and phone calls. To fulfill orders, the ERP application needed to communicate effectively with warehouse management and a host of other systems. To cement relationships with repeat buyers of its office and computer products, Corporate Express needed to forge direct connections with customers' procurement systems—updating multiple systems on each end.

To address the company's integration needs, Miller and his team did what most developers would do: They began writing point-to-point interfaces between the various applications. But they quickly discovered that wasn't the answer. "It was painfully obvious that [the connections] were fragile," said Miller, vice president of technical architecture at Corporate Express. "The applications were so tightly coupled that when you change [one or the other of them], you break the interface."

Like many development managers facing increasingly complex integration projects, what Miller was after was not simply the ability to establish a connection and exchange data. He needed a way to enable each application to play its individual part in carrying out a complex business process, such as placing and fulfilling a customer's order.

You can't require a specific technology on the customer's end, says Corporate Express' Miller.

"You need to drive a process for customer synchronization across all systems," said Paraic Sweeney, vice president of marketing for WebSphere business integration at IBM Corp. "And you need a consistent way to do that."

In any company, a customer order involves many steps that typically span multiple systems, departments and employees. "You take customer orders on the front side. You make requests, check inventory, notify accounting, send an acknowledgement to the customer," said Todd Martin, director of product management for Vitria Technology Inc. At the same time, you need to refill inventory, interfacing with suppliers and with manufacturing, he said.

APP SERVER OR PURE PLAY?

To integrate applications from a workflow and business process perspective, Miller turned to the webMethods Integration Platform, from webMethods Inc. For five or so years, the pure-play business integration software vendors, including webMethods and Vitria, had the business integration software market to themselves, said Roy Shulte, an analyst at Gartner Inc. He also counts SeeBeyond Technology Corp. and TIBCO Software Inc. among that group.

But in the past two years, IBM, BEA Systems Inc. and Microsoft Corp. have gotten in on the act. With WebSphere Business Integration, WebLogic Integration and BizTalk Server, respectively, they are essentially adding sophisticated business integration capabilities to their application development environments.

"The question today is not 'Do I need an integration server?' It's 'Should I buy it from my app server vendor—or go with a pure-play business integration vendor?' " said Shulte.

While the two approaches to business process integration differ—one is tightly coupled with the application server, the other functions as a neutral third party—they perform essentially the same functions, said Shulte. Both go through gateways to make connections to otherwise incompatible systems. They use graphical tools, enabling developers to take a drag-and-drop approach to "coding" the links that make it possible for one application to intelligently interpret and act on another application's business data. "All those things for [business process] integration are baked into the middleware already. There is a lot less [custom] work to be done," said Miller.

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Integration Projects: The Costs and Paybacks

BY JENNIFER DEJONG

Back in 2000, when software vendors were still cashing in on the Internet boom, licensing fees for integration servers typically ran from US$400,000 to $600,000. Today, now the business integration pioneers—webMethods, TIBCO and Vitria, among others—no longer have the market to themselves, prices are dropping. They currently fall more into the $200,000 to $250,000 range, said Gartner Inc. analyst Roy Shulte.

But before you leap at the bargain, it's useful to take all the associated costs into account. As with most enterprise software investments, the real cost is not the licensing fees. It's the labor associated with learning the software and engaging outside services to help with the integration work. Those expenses will nearly always exceed the licensing fees, said Shulte.

Here's how Gartner breaks down the additional costs:

Software Maintenance: Annual maintenance fees for integration suites and related middleware are typically listed at 20 percent to 22 percent of licensing fees. Actual costs, after price negotiations, are more likely to run 15 percent to 19 percent.

Consulting Services: Integration projects often involve on-site help from the integration software vendor you buy from. They all offer training and assistance in the use of their software, typically for one or two weeks at the outset of the project. Expect to pay $250 to

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PURE PLAYS

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From a cost and capabilities standpoint, the two camps also are comparable, said Shulte. But, of course, that hasn't kept either one from insisting its way is better. "The pure plays say, 'Go with us; we are Switzerland.' A neutral approach is best," he said. As pure plays, they emphasize that they connect equally well to all environments, and they say that the application server vendors are biased in favor of building tighter connections with their own environments. "There are a variety of technologies involved here, and from a business process perspective, we play nice with all of them," said Vitria's Martin.

Integration is about 'enabling the business to act as one,' says BEA's Linkin.

"We have been doing integration for six years. We have seen the patterns. We have worked through many more of the connections," added Jim Ivers, senior director of product marketing at webMethods.

Peter Linkin, senior director of integration solutions at BEA, said, "The big question you face with pure plays is, 'How do I integrate my integration server with the application development environment?'" When the two are tightly integrated, the integration server can easily make use of the business logic stored in the application server, he said.

In addition, noted IBM's Sweeney, when the integration server is incorporated in the development environment "the customer doesn't need multiple mechanisms for extensibility and scalability."

Linkin noted that webMethods' recent announcement it was integrating the JBoss open-source application server within the webMethods Integration Platform proves that integrating the integration server with the application server is the better approach.

Corporate Express' Miller said he is looking forward to the new version of the webMethods Integration Platform because there are times when it's useful to have easy access to business logic that's already in the application server. "But I am of the opinion that the application server is good at building applications. But it is not good at building integrations," he said.

All apps in a business process must understand the data, says IBM's Sweeney.

TALKING SEMANTICS

What makes business process integration so challenging is that you are no longer dealing with integration on a strictly mechanical level. As standards-based environments, Java and .NET manage integration at the connectivity and messaging levels. And while some connections are certainly trickier to create than others, you are still basically operating on the nuts-and-bolts level.

By contrast, business process integration requires applications that connect with one another not simply to share or exchange data but to actually understand what one another has in mind.

"In one system, customer might be defined as anyone who bought from us in the last six months. In another, customer could simply refer to a prospect," explained Shulte, who referred to the process as semantic transformation. "The semantics must be appropriate for the source destination software," he added.

How business applications represent even the most simple elements tends to vary greatly from system to system. For example, said IBM's Sweeney, "a customer and all the attributes of a customer are represented in one particular way in, say, a Siebel system. But in SAP, UPS Logistics or your company's custom billing application, the configuration of how a customer name and address is stored could be very, very different."

In order to integrate the applications effectively, you have to transform the data to a generic form—then back to the application-specific format—so that all the applications involved in a business process can understand the data, he explained. "You need to consistently transfer data between applications," said Sweeney. "And you need a process underneath it."

ACTING AS ONE

On a literal level, business integration is about how you take my order, fulfill it and pass it through the various systems, said BEA's Linkin. But in the broader, more strategic sense, it is about "linking the application development process with the business, enabling the business to act as one," he said.

To help make that a reality, integration server vendors have incorporated reporting capabilities in their products, typically aimed at C-level executives. For example, BEA's integration server features what it calls an executive dashboard, which provides real-time data on, say, sales and shipments, customized to the executive's needs, said Linkin.

In the long run, integration servers are enabling development shops that use them to play an increasingly central role in helping companies achieve business goals. Miller said that to date Corporate Express has created direct links to more than 200 customers. "You never will gain traction with customers and suppliers if you require specific technology on their end," he said. ▮

INTEGRATION PROJECTS

◂ continued from page 23

$300 per hour for these services.

Much more expensive is the cost of engaging an outside firm to do the actual integration work for you. That can run as much as $2 million—eight to 10 times the cost of licensing fees. Keep in mind that it's misleading to apply this cost to a single integration project. You are essentially investing in an integration infrastructure that also will be used for future projects.

Firms that offer application integration services include Accenture, Bearing Point, EDS, HP and IBM.

Training and Time to Learn: Developers are likely to spend two to five weeks learning how to use the integration software. A typical project will require two to six people. Although you may bring in additional developers down the road, this is primarily a one-time cost.

Ongoing Technical Support: Integration tools typically require .5 to two full-time staffers for ongoing technical support, not counting additional development work.

JUSTIFYING THE COSTS

Shulte said development managers should not attempt to justify the software and associated costs through direct IS cost avoidance. The big benefits of implementing business integration software lie outside of the information systems domain, he said. They include clerical cost savings and improvements to the business process, such as better customer service, increased customer satisfaction, improved ability to up-sell or cross-sell, fewer errors and returns for goods that are ordered, and lower inventory carrying costs.

If the business unit is willing to get involved in predicting the potential benefits, the cost of the integration project will be easier to justify. Look to the integration software vendors for help during the sales cycle. They are, of course, eager to help prospective buyers calculate the potential return on investment.

For development managers, the real challenge is not measuring the business payback, but deciding whether to invest in the business integration software infrastructure or go it alone. For small applications with a limited number of interfaces, it's always more cost effective to code the connections yourself, said Shulte.

To justify the integration software and associated costs, the project should involve at least two dozen interfaces and several application systems, he said. Some projects, particularly for companies that link with customers and suppliers, will involve hundreds of interfaces.

Another factor to consider is how often the connections are likely to change. Gartner research cites a 25 percent to 43 percent reduction in IS labor costs when you use a broker product, compared with executing the same work without a broker. ■

EDITORIAL

Integration Is Not Easy

During this recession, developers and vendors alike have said that their greatest challenge—and greatest opportunity—is to integrate disparate data systems.

It's about time.

For decades, businesses large and small have constructed powerful silos of information, business logic and data-processing capability. Here's the order-management system. Here's the software for managing our New York warehouse. There's the software for managing our Chicago warehouse. Here's the software for managing shipments from Chicago to New York. Here's our billing system. Here's another billing system. Here's the invoice-generating system, which doesn't connect to our shipping system. Here's the credit-card reconciling system, which doesn't talk to our accounts-receivable system.

While most businesses continue to require new applications, as well as the expansion of existing applications, the payoff will be in careful, controlled integration of those disparate silos. Integration can lower operating costs, eliminate errors due to flawed rekeying and data duplication, improve customer and employee satisfaction, increase business agility and enable new business services.

Yet integration is expensive and fraught with peril. In some businesses, integration projects drag on for years and cost millions of unbudgeted dollars. Why? Unexpected complexities of data systems can destroy integration plans. Superficially impressive technologies can fail to scale, or prove to be unreliable. A lack of clearly understood requirements—other than "Integrate our systems!"—can waste time and money.

Worse, integration projects can bypass an enterprise's formal and informal checks-and-balances barriers between departments and applications. Indeed, automating processes at the speed of light might prove to propagate logic errors and data corruption among systems at unimagined speed.

New technologies can both help and hinder the success of integration projects. Web services, .NET and J2EE integration servers and other emerging techniques offer a compelling approach with open protocols, lower prices and greater flexibility than traditional "pure play" solutions. Yet it remains to be seen how the newfangled approaches will scale, and whether they will prove to be as reliable as traditional offerings in a production environment.

Plus, it seems that every integration provider has suddenly become an expert in building adapters and connectors. "Oh, we have lots," we hear all the time. "SAP, CICS, Siebel, Oracle, Java, .NET—we connect them all in a HIPAA-ready Sarbanes-Oxley-compliant way." Right.

The new mantra we hear is that finally, finally, integration is easy. Just point, click, drag, drop. Select your adapter, hook up the connector, draw the orchestration, specify the schema transformation, and watch the data fly across the browser-based interface.

That's great for demoware. But don't be fooled: Whether you go the Web services/integration server route, or stick with the high-end "classic" solutions, integration will remain time-consuming, expensive and complex. However, the flurry of innovation is a welcome improvement to what had been an industry dominated by a few powerful vendors. Integration remains a huge opportunity—and as long as the requirements are clear and the technologies capable, it's worth the investment. ▮

GUEST VIEW

IS SOAP THE CLEANEST FOR WEB SERVICES?

I am not smart enough or rich enough to be secure when it comes to Web services. Today, Web services are in demand—enterprise portals, Web syndication, Web service APIs, etc. Everyone wants them for their very powerful ability to enable distributed computing across the Internet. Fast forward past the "Wow, Web services are cool," and the "We gotta have 'em," phases, and your challenge is to build them.

Given some of the tools out there today, building Web services is becoming quite trivial. Within about five minutes of opening Visual Studio .NET, I can magically expose the weather forecast for my cubicle. Back in the day, things were not that easy. We would have to slog for hours generating <SOAP-ENV:Envelope> tags, making sure all our slashes and less-thans were formatted properly.

Today, we have bigger fish to fry. Just because today's tools allow you create Web services at record speed does not mean they are ready for prime time. If you are like most people, exposing some services to the outside world, or even to your internal business, you would like to have some security attached to your new services. Unless your Web service is exposing the current time or maybe the status of the company's fridge, you will want to make sure those who shouldn't access your services, don't.

The challenge becomes building Web services that provide secure access to your critical applications—a process akin to navigating a minefield of short- and long-term issues. In short, developers have limited options when it comes to securing Web services, and recognize that it takes a lot of smarts and even more money to do so reliably and responsibly. Herein lies my frustration—I do not have a lot of money, and I am not really that smart.

ALEC GRAZIANO

The developers of the SOAP protocol had the foresight to know that what they were designing would soon need to be extended to support things they did not feel were important to the core of the protocol, not unlike the inventor of the touch-tone phone building in the # and * keys for future use. I'm sure that guy never imagined *69 would allow a call-back to the last caller, for instance. Similar extensibility exists in the SOAP protocol, and while the spec is flexible and powerful, it's challenging to implement any non-spec items, such as security, in any standard kind of format.

Here's the rub: IT professionals live for security, while developers, regardless of how talented they might be, live for interoperability. Security for Web services through SOAP extensions, or worse yet, a home-grown solution, falls right into the lap of the developer (and neither the IT department nor the developers are particularly happy about this). Security considerations, assumptions and requirements for developers, the IT department and the business owners who need the data protected may all be different.

A relevant analogy: Developers don't write encryption technology every time they implement an e-commerce site or application. The IT department handles security through firewalls, SSL certificates and the like. An infrastructure of technology standards, trusted certificate authorities and millions of browsers that recognize this infrastructure make this all relatively simple and possible, and puts the right responsibilities on the right people's plates. The server-to-server nature of Web services makes securing them much trickier.

Once security is out of the hands of a centralized authority,

LETTERS TO THE EDITOR

CUTTING COSTS

I do take some exception to the premise in your article ["Enough Features Already!" Sept. 15, page 23, or at www.sdtimes.com/news/086/special2.htm] that the trend toward cost savings achieved with new projects is mostly attributed to falling hardware prices.

If I have a project that requires 100 users to access a database, the general cost would be: Oracle non-enterprise with processor license: $15,000; DB2 Enterprise: $10,000; MySQL: $500.00.

The server that I would utilize would be generally the same across these database platforms. Actually I may need less powerful hardware with the MySQL server running on Linux versus Windows.

As you can readily determine, database platform can have a serious impact on cost for the respective project.

Another part of the cost of such projects is the tools that are used to design the application. Each platform listed above would use tools generally associated with that platform—there are many exceptions here, and again I am speaking generally. These tools also have a serious impact on the cost of the project.

We have a number of proposed projects that we are evaluating and planning. It is our inclination to move more toward the MySQL/Linux environment with a development environment such as Borland's JBuilder. The savings are very significant!

Bob Trautman
Oracle Certified Professional
Oracle DBA

MICROSOFT'S ABOUT MONEY

Regarding your editorial "Blasting Microsoft" [Sept. 1, page 34, or at www.sdtimes.com/opinions/opinion_085.htm], I don't believe it's possible for Microsoft to separate its applications from its operating system. For as long as I can remember, Microsoft considers applications to be extensions of the Windows operating systems. This not only includes their own applications (Word, Excel, Outlook, etc.), but also those of third-party developers. By considering third-party applications as extensions of its operating system, Microsoft leaves itself open to any bug, holes or other types of errors written by any developers, not just their own.

While this may not be the best approach from an engineering point of view, it makes for a great marketing device. By tying developers into its system, they made it extremely difficult for developers to redo their applications to run on competing operating systems. But then, Microsoft did not make

such as your trusty IT department, any services that are built and exposed are free to travel in and out of your infrastructure with little notice—not ideal if you want to maintain tight security. For example, since Web services generally ride on top of the HTTP protocol, an IT guy may think he has the fort secured by allowing only "Web traffic" on port 80. But in reality, he could be letting the Trojan horse into his kingdom.

Even if everyone is on board with the risks involved in letting developers secure Web services with SOAP extensions, there are still a slew of logistical issues. Since a true standard has yet to be widely accepted, there are many security options with many flavors available.

Every party consuming the Web service will need to be on board with whatever mechanism the developer decides is best for his application: Maybe he will use a digital signature, maybe he will attach a certificate, or maybe he will DES encrypt and Base64 encode just the password field in a log-in call. Perhaps he will want to coordinate public and private keys for hash algorithms, or attach a certificate to a SOAP message. Regardless, it all sounds pretty daunting to this developer.

On paper, SOAP security extensions look great. However, while OASIS has made significant strides on the spec, there is still a lot of work to be done. Until these extensions become an accepted and widely used standard, those wanting security through good ol' SOAP will need to take a deep breath, put on their best thinking caps, and hunker down for what could be some time-consuming and tedious development.

They will need to coordinate with all possible consumers of the service what mechanism they decide to utilize.

They will need to keep IT in the loop on all areas of traffic and implement some home-grown monitoring and notification to IT if and when a breach occurs.

They will need to keep in sync with consumers regarding any changes to encryption keys, hash algorithms, etc.

Not only will there be an initial hit upfront, but maintaining this mechanism will become the thorn in some unlucky developer's side. It will not be until the major tool providers integrate these standards that we will start getting the use that allows for truly fluid and seamless integration.

BUILD VS. BUY

If I can't build it, what can I buy? Since building my own security into SOAP seems like a real headache and a logistical nightmare over the life of the project, how about I just buy something that will do that for me?

In fact, there are solutions that can shore up my cubicle forecast Web service lickety-split. There are two classes of enterprise products that solve the problem from security vendors, authentication server vendors and enterprise portal providers.

Authentication and security frameworks, like Authoria, Netegrity and others, provide excellent central single-sign-on frameworks to enable my Web services applications.

Similarly, application server vendors and enterprise portal providers offer integrated security frameworks to deal with interoperability issues across the enterprise. However, the downside is that these solutions are truly only available and worth the return on investment to the large shops that can afford them.

So what do we do? Building security into SOAP puts way too much responsibility in the wrong court. Why should this one piece of business fall outside the general practices of a business? Furthermore, with the SOAP extensions as they are today, any consumer of a Web service is just conforming to the choices of the service provider's development team. On the other hand, buying into a solution that has created a standard consolidation of authentication and security is great for those who can afford it, but a real disappointment for those who can't.

For me, I would like to wait it out. Despite the fact that SOAP has been around for a few years now, I consider embedded SOAP security to still be in its infancy.

However, given that waiting it out is not feasible in a development environment, I would opt for embracing an XML firewall product. XML firewalls do for SOAP and XML, in general, what traditional firewalls do for standard Internet traffic. They have the ability to inspect the SOAP message and header and make decisions based on the content of the XML. They support a number of neat features, some even embracing the SOAP security extensions.

By using an XML firewall, we give control back to the IT department and do not allow SOAP traffic to pass through our network unnoticed. They do come at a price, though. But given my choices today, I think an XML firewall is the best choice for a secure, manageable Web services environment.

Early adopters of any new technology always get beat up for a while until the kinks get worked out. I've been beaten up many times in my career, and I've decided to bob and weave through the Web services security punches this time and try not to get hit. Perhaps a year or so from now I will be smart enough or rich enough to more cleanly navigate the Web services security championship bout. ▮

Alec Graziano is director of Web engineering for Miller Systems Inc., an IT consulting company.

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all its money by creating technically impeccable software. They made it by doing a superb job of marketing their mediocre software. The name of the game is making money, not developing technically superb products. And when it comes to making money, Microsoft is about as good as it gets.

So, don't hold your breath waiting for technically sound solutions from Microsoft. Making money is their No. 1 concern, not sound engineering.

Norman Reid

APPLES TO WINDOWS

"Xcode: Apple's Answer to Visual Studio" [Sept. 1, page 20, or at www.sdtimes.com/cols/firstlook_085.htm] was overall a good story, but a few points were missed, I think:

1. In comparing Xcode and VS.NET, the author forgot to mention the fact that the Xcode UI requires about one-tenth of the effort of the VS.NET (and VS for that matter) UI. Operations that are simple in Xcode require a master's degree and advanced investigational skills to complete in VS. For instance, adding a file to target in Xcode is as simple as clicking a check box in the source tree view. I doubt there is enough room on this page to outline the steps needed for this operation in VS.

Ever have VS compile in code that wasn't in your source tree view? Try it out sometime; it's great. Ever try to organize your project into anything other than a single directory in Windows? Get ready for an hour of frustration as you tell VS about every directory it needs to look at to find your files (in an incredibly bad piece of UI to boot). Why can't VS figure it out for you when the files are already added to the project?

2. There was no mention of the fact that all relevant and needed code information comes as part of OS X. The headers for nearly every part of the system are available right out of the box! Every header for the system is built into the framework of the OS. I'm not using the term "framework" as some abstract concept, either. Look for yourself in /System/Library/Frameworks/ and you'll find concise and organized collections of information for every part of the machine.

The Apple developer CD not only installs the tools, but also installs full HTML-based documentation for every object and module in the system. It also includes a complete list of HOWTO documents and sample code that blows the VS tools out of the water. Apple's documentation alone makes development for the Mac infinitely easier than digging through the mire that is MSDN or the miles of useless documentation included on one of its 40 developer CDs.

3. Projects in Xcode do not require 50 directories of strangely named support files and link files that only seem to take up space and get in the way. How many .dsw and .dsp files can one person take before going insane? Why not have just a single file called .vsproj to manage everything? Also, why a directory called "debug" for the build product? Wouldn't "build" be easier?

I have never been more frustrated in my life than the times I've worked on MS projects in Visual Studio. I see my productivity cut in half when I use it. I'm happy to see that the Mac development tools are finally getting some attention. They deserve every bit of praise they receive.

Mat Davidson

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Publisher
Ted Bahr
+1-516-922-2101 x101 • ted@bzmedia.com

Editor-in-Chief
Alan Zeichick
+1-650-359-4763 • alan@bzmedia.com

Executive Editor
David Rubinstein
+1-516-922-2101 x105 • drubinstein@bzmedia.com

Senior News Editor
Edward J. Correia
+1-516-922-2101 x100 • ecorreia@bzmedia.com

Associate News Editor
Yvonne L. Lee
+1-408-737-1153 • ylee@bzmedia.com

Copy Chief
Patricia Sarica
+1-516-922-2101 x106 • psarica@bzmedia.com

Art Director
Mara Leonardi
+1-516-922-2101 x109 • mleonardi@bzmedia.com

Columnists
Andrew Binstock
abinstock@pacificdataworks.com
Larry O'Brien
larryo@thinkingin.net
Steven J. Vaughan-Nichols
sjvn@vna1.com

Contributing Writers
Alyson Behr
alyson@behrcomm.com
Jennifer deJong
jdejong@vermontel.net
Lisa Morgan
lisamorgan@mindspring.com
Oliver Rist
orist@fb2corp.com
Esther Schindler
esther@bitranch.com

Advertising Sales Representatives
Southwest U.S.
Julie Fountain
+1-831-476-1716 • jfountain@bzmedia.com
Northeast/North Central U.S./Canada
David Karp
+1-516-922-5253 • dkarp@bzmedia.com
Northwest U.S./Canada
Paula F. Miller
+1-925-831-3803 • pmiller@bzmedia.com
Southeast U.S./Europe
Jonathan Sawyer
+1-603-924-4489 • jsawyer@bzmedia.com

Director of Circulation & Manufacturing
Rebecca Pappas
+1-516-922-1818 • rpappas@bzmedia.com
Circulation Assistant
Phyllis Oakes
+1-516-922-2287 • poakes@bzmedia.com
Office Manager/Marketing
Cathy Zimmermann
+1-516-922-2101 x108 • czimmermann@bzmedia.com
Customer Service/Subscriptions
+1-866-254-0110 • service@bzmedia.com

Bookkeeping Services
Ken Hafner • Kiwi Partners Inc.
khafner@kiwipartners.com

Article Reprints
Lisa Abelson • Lisa Abelson & Co.
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BPA

BZ Media

BZ Media LLC
2 East Main Street
Oyster Bay, NY 11771
+1-516-922-2101 • fax +1-516-922-1822
www.bzmedia.com • info@bzmedia.com

President
Ted Bahr
Executive Vice President
Alan Zeichick

NO RESERVATIONS ABOUT .NET

I've had the relatively rare luck to work on extremely similar projects in .NET, Java 2 Standard Edition and Java 2 Enterprise Edition. My wholehearted favoring of .NET over the J2EE platform, while supported by theory and analysis, is driven by my experiences developing and shipping these applications.

In the spring of 2001, I got a contract implementing a proof-of-concept of a J2EE middle tier exposing a Web service to the outside world and connecting in back to a mainframe-based airline reservation system—what's known in the travel industry as a Global Distribution System. The GDS domain might well be the very definition of a legacy system—the Semi-Automatic Business Research Environment (SABRE) was rolled out in 1964.

The company that hired me was exceptionally good to work with, and I was delighted when they extended my contract to the implementation phase. The CTO challenged me on the subject of J2EE, contending there was no compelling reason why the subsystem couldn't be implemented in "straight" Java. I demurred, but the CTO pointed out that the subsystem had no need for J2EE's main justifications, because persistence was handled by the GDS, and because we were implementing a stateless Web service, IP load-balancing should allow us to scale.

Also, the CTO said that he had to pay a premium for EJB experience, that even having done so he saw people on the team struggling with J2EE and tool issues, and that ultimately he felt the subsystem should not have a layer of complexity if concrete benefits couldn't be shown. (This was a smart CTO.)

So we agreed that the team would do initial development using the Java 2 SDK as long as we could revisit the need for EJBs regularly. What I found was that, like the apocryphal frog that sat without complaining in the pan of water slowly heated to boiling, I had been scalded by J2EE.

The simplest example? It took seven minutes between a code change and deployment of the J2EE prototype, while with J2SE, we could go from a code change to completion of our entire multihundred test suite in less than three minutes. Perhaps because of our reduced working set, or perhaps because of flaws in a tool that we'd used in the J2EE prototype, the J2SE-based subsystem load-tested better than our best-case estimates, giving us network-limited performance and working flawlessly on our duration-test thanks to the stellar performance of our network programmer.

So it was with the mindset that J2EE had gone awry that I began investigating .NET seriously two years ago. Immediately, I was struck with the benefits of better access to the underlying platform and C#'s evolutionary improvements over Java. I wondered, though, how .NET's capabilities would compare with the world of server-side Java I'd been immersed in for the previous half-decade. Those questions were answered when earlier this year, I was hired to lead the development of, yes, a .NET-based Web service application integrated in the back to a GDS.

It wasn't precisely the same application, because business logic in the travel industry is extremely specialized, but the concerns and structure of all the subsystems—J2EE, J2SE and .NET—were dictated by similar constraints.

True, each time I approached the problem I had more experience with the GDS and travel industry's XML standard, and naturally one would expect greater productivity on the third project than on the first, so I'm not going to harp on the fact that, aside from business logic, the .NET project took 80 percent of the J2SE project's time with less than 75 percent of the manpower.

Why did the .NET project so impress me? The J2SE subsystem was extremely successful and, last time I checked, was the leader in terms of dollar transactions per month. Both the .NET system and the J2SE subsystems easily exceeded scaling requirements. The J2SE project used more external tools and libraries, but that's not necessarily a weakness; both the .NET and J2SE subsystems had small surface areas composed of efficient tools (in contrast, the J2EE app server had a server-pages solution that wasn't used and, if server pages had been needed, would not have been my preferred solution). So in terms of my direct responsibilities, you could flip a coin between Java with the J2SE and C# with .NET.

But what really proved .NET's value proposition to me was when I saw how the subsystem was integrated. Web services may be a buzzword in semidecline, but when you witness the ease with which minimally experienced server-page programmers can successfully participate in developing a scalable distributed application by consuming Web services developed by more experienced programmers, you become a believer.

When you witness developing programmers transitioning into a more object-oriented approach because using Visual Basic .NET they can do so seamlessly, and then you go back to your own workstation and see the curly brackets of C#, you realize that what's really being integrated is not subsystems, but the programming team. What's being turned into a coherent whole is not code, but coders. And that's why I choose the .NET platform. Without reservations. ▮

Larry O'Brien is an independent technology consultant and analyst, and the founding editor of Software Development Magazine.

SCO: TIP OF THE ICEBERG?

In an impressive show of unity, the open-source community has roundly condemned SCO's lawsuit, which alleges copyrighted source code was placed in the Linux source tree. Every pundit, analyst and user has inveighed on the topic.

However, we must do more than fulminate about the SCO problem. Consider the possibility that SCO might be just the tip of the iceberg. Given the recording industry's decision to go after users who downloaded copyrighted works, a greater enforcement of copyrights is likely to be the norm, and SCO is not a one-time problem. We need to start formulating over-arching solutions.

Three categories of problems lurk: trade secrets, patents and, of course, copyrights.

Let's start with trade secrets. Say a disgruntled programmer "contributes" a key piece of source code that reveals a trade secret. Another firm picks it up not knowing its origins and develops a successful competing product. When the original company discovers the leak, it can no longer close the barn door because the trade secret has been distributed worldwide. What can that company do? And what are the obligations of all the other companies—such as Red Hat in the case of Linux—that might have profited from the sale of products containing the code?

Patents are a different problem. They are frequently violated unintentionally, and accountability can be demanded long after the violation took place. Let us recall Unisys' pursuit of licensing fees for GIF files (due to a patent on GIF's compression algorithms) long after GIFs had become an accepted standard.

Equally astonishing was the discovery that using XOR to reverse pixels for displaying an image was a violation. But patent 4,197,590, filed in 1980 made it so. In fact, the inadvertent violation of patents and delayed enforcement are often a remedy to patent suits: The typical scenario is that someone sues IBM for patent violations, IBM responds by finding one of its 10,000 patents violated in the accuser's software, and they settle the suit by licensing the technologies to each other. However, in the case of open-source products, how would such a quid pro quo work?

In the SCO case, I think it's likely that code copyrighted by SCO found its way into Linux. It could have happened in any one of a dozen ways, many of them devoid of nefarious intent. But this begs the larger question: Who else's private intellectual property is in Linux, or potentially other open-source projects?

The question of commercial code in open source has been around since the movement's earliest days. Anyone familiar with the contentious dispute between Jim Gosling and Richard Stallman over the display code in GNU emacs will recollect how long this argument has gone on. In those days, however, the issue was not money. There was no money in open-source software; the Free Software Foundation's threadbare finances bore mute testimony to this point. As a result, money was not the form of remedy typically sought. Simple correction of code was sufficient. (Gosling's code was removed from Stallman's emacs in v. 16.56 and the issue went away.)

The dynamics of the Linux market, though, have changed irreversibly as big companies derive direct commercial benefit from open-source products—which is why SCO sued IBM, but not Linus Torvalds.

As a result, the question of ownership of code and algorithms now hangs over the open-source community. And the community will need to come to grips with it, if new suits are to be avoided.

One possible solution lies with the newly formed Open Source Development Lab (OSDL) in Beaverton, Ore., which aims to be the "center of gravity for Linux." This group, funded by a variety of vendors interested in promoting Linux, may be the ideal party to formulate policies for the submission of code and the verification of code that is accepted.

For example, OSDL might seek to work with SCO to obtain a copy of the Unix codebase in exchange for legal immunity with the proviso that it do a line-by-line comparison to remove any code that overlaps with the Unix sources. (That, of course, assumes that SCO is seeking to remove its intellectual property from Linux.) Likewise, OSDL might need to patent some Linux innovations and make them bargaining chips if it is sued for inadvertent patent violations.

Whatever the solution, I think that if the open-source community does not respond proactively to these issues with new policies as to how code is submitted and accepted, the SCO case will be remembered not as an unpleasant anomaly but the beginning of an unfortunate trend. ▮

Andrew Binstock is the principal analyst at Pacific Data Works LLC.

THE MISERY OF DEBUGGING

There are few jobs developers hate more than debugging. They tend to want to create something new, not track down annoying logic bugs, or worse still, a single misspelled word that causes the just-in-time compiler to hiccup when the tide is high and the moon is full.

They may hate it, but people are getting tired of viruses like SoBig, Blaster and Slammer that cause havoc thanks to poor programming practices. Indeed, the National Institute of Standards and Technology estimated that in 2001, US$59.5 billion was lost annually because of software bugs. The Sustainable Computing Consortium, an academic, government and business initiative to drive IT improvements, thinks that estimate is on the low side. It thinks that defective computer systems cost U.S. companies alone more than $200 billion annually. I think, "Is that all?"

Of course, ask anyone in the business and they'll tell you that programming standards for commercial products have never been lower. I'm not sure I buy that. I've been sitting here, thinking about dBase IV's general awfulness and WordStar 2000 and OS/2 1.1, neither of which ever met a printer it liked. Back in the *good* old days, top companies were more than capable of producing truly awful software.

What is different, though, is the stakes are higher. Today, everyone uses software at home and at work. 1988's Morris Worm still takes the cake for the most damage done to the Internet as a whole, but millions more users were inconvenienced by SoBig, Blaster and Slammer.

Of course, your customers aren't going to turn away from their computers. But they are going to explore software alternatives. If you still think your end users are going to wait around for you to fix all your 1.0 release bugs, I think you've got another thing coming.

JAVA WATCH

STEVEN J. VAUGHAN-NICHOLS

Now more than ever, it's time to get programming right the first time. Besides, as the old programming saying goes, it takes $10 to fix a bug during development, $100 to fix it in quality assurance, $1,000 to fix the bug during beta testing, and $10,000 or more to fix it after it's been deployed.

So how do you do that? Emphasize quality over quantity. If that means your programmers' lines of code go down, so be it. If that means you spend more time managing code reviews, and less time managing budget reviews, so be it.

It also means that you might want to adopt Extreme Programming ("Extreme Planning," Jan. 15, 2001, page 25, or at www.sdtimes.com/cols/bookwatch_022.htm). You don't have to become a fanatic about it, but the basics—dividing jobs into small projects that are completed with constant developer and user communications—make a lot of sense. What's wrong with requiring nightly builds, anyway?

When it comes to choosing Java tools and platforms, you also should require that your developers use only J2ME 1.4 and above. Why? Because it's only then that Sun introduced a built-in assertion capability with the keyword "assert." With this, you can spot problems that otherwise would lie in wait for an end user. Combine assert with J2ME's 1.4 logging API, and you can track what's going wrong in a program even after deployment without end users taking a hit.

You should also look to using debugging tools such as gdb (gcc.gnu.org/java/gdb.html) if you're compiling your Java code with the open-source jcc compiler.

NetBeans programmers should give Sun's open-source Jackpot Project (research.sun.com/projects/jackpot) a try. In particular, the Jackpot Source Code Metrics (JSCM), which presently works only as a beta module for NetBeans, gives you a static code checker. This uses lexical scanning, parsing and semantic and data-flow analysis. You've heard that before, right? But JSCM goes beyond that by comparing the code against a set of metrics that flag the errors in an IDE environment so that you can spot and repair the problem immediately.

Better still, these metrics can be set to different audit levels so that you will see only the level of problems you're looking for during a debugging session. Sounds good, doesn't it?

It is good, but there's one problem with Jackpot. The program, which also was supposed to work with Java in general, hasn't been updated since the fall of 2002. I fear, like so many other debugging efforts, that it's been placed on a back burner.

If so, that's a real mistake. When a project comes close to deadline, all too often our good intentions about writing good code go out the window.

Enough is enough. It's time to make debugging code job No. 1. People have put up with bad programs for far too long. In the early days of most technologies, there's a period when people are willing to put up with any trouble, just so long as they can have a car, a radio or a personal computer. But then there comes a day when people want a product that works right the first time, and not the second time or half the time. That day is coming for software. You can be part of this future or part of history. The decision is yours. ▮

Steven J. Vaughan-Nichols is editor of Practical Technology (www.practical-tech.com) and has worked as a programmer for NASA and the Dept. of Defense.

NAVIGATING THE SEA CHANGE

According to research firm Gartner Inc., application development is at a crossroads. That, in fact, is the name of one of the tracks of sessions the company will present at its Symposium and ITxpo next week in Orlando, Fla.

Many developers and vendors may believe that these changes are brought about by new technologies, such as J2EE, .NET, grids or Web services. But the driver isn't bits and bytes. It's dollars and cents—how businesses continue to undergo profound changes because of advances in technology.

INDUSTRY WATCH

DAVID RUBINSTEIN

Ever since the dot-com shift allowed many businesses to communicate with and sell to their customers directly, top executives have come to view their technology assets as balance-sheet revenue generators, rather than merely as business facilitators designed to smooth internal business processes. That has led to quiet but radical changes in the goals and operations of software developers.

Indeed, that's affected the very nature of the applications that are being developed. Today, they are dramatically different than they were even 10 years ago. And the requirements of those applications are radically different than they were when the only users were employees, who had no choice but to wait a long time for request responses and who would still come to work the next day even if their software tools failed. Internet customers, businesses have learned, are much less forgiving.

Because applications today are outward-facing, and expose more of a company's business processes, internal logic and sensitive databases than ever before, developers are being told to consider security while building any new software—because even if it's not outward-facing today, thanks to Web services and the drive toward business integration, any corporate asset is likely to be vulnerable to unauthorized access. All the while, as companies continue to adhere to the do-more-with-less mantra, it is imperative for developers to get these applications right the first time, which means they are being asked to take on more of the responsibility for testing during development.

Teresa Lanowitz, a researcher at Gartner, has tracked these changes and sees big differences in the role developers now play within an organization, as well as in the processes and tools developers use.

"The real challenge for the development group," Lanowitz said, "is to make sure it is aligned with the business group. It's part and parcel [of a business], no longer an evil necessity."

She said that above and beyond writing code, corporate developers will be tasked with security issues, white-box testing of applications and ensuring compliance with state and federal mandates. "Developers are now much more a part of the whole SD life cycle, from requirements gathering to production and maintenance," she added. "Ten years ago, a developer would write something and throw it over to QA and operations. Now it's more of a community process."

IBM's Gina Poole, a vice president in IBM's developer relations group, sees a talent pool divided into seven different segments: the traditional developers skilled in multiple languages such as C, C++ and COBOL; the Web developer who works with page editors and visual design tools; the corporate developers who are using the latest 4GL tools and IDEs; and the specialty developers who either are Java or .NET experts, or focus on embedded systems or databases.

The corporate developer, according to Poole, is "coming up above low-level coding and focusing on business requirements." This developer, she said, is spending more time integrating existing applications, components and Web services than he is creating new applications.

"That role and focus of IT adding business value really, in the current environment, makes [corporate developers] even more critical," Poole said. "They can translate the business needs into technology." Vendors, Poole insisted, see their role as providing higher-level tool suites that make application modeling, assembly, testing and deployment easier. In fact, Gartner's Lanowitz predicted that by 2007, most small software tools companies will be gone, and those that will survive will do so only by complementing the full stacks offered by the software giants.

But there is a downside to these development tools that put layers between developers and the code. The vendors selling these tools call it "ease of use"; however, a class of developers is being created that cannot troubleshoot when something deep in code that is automatically generated by the tools goes awry.

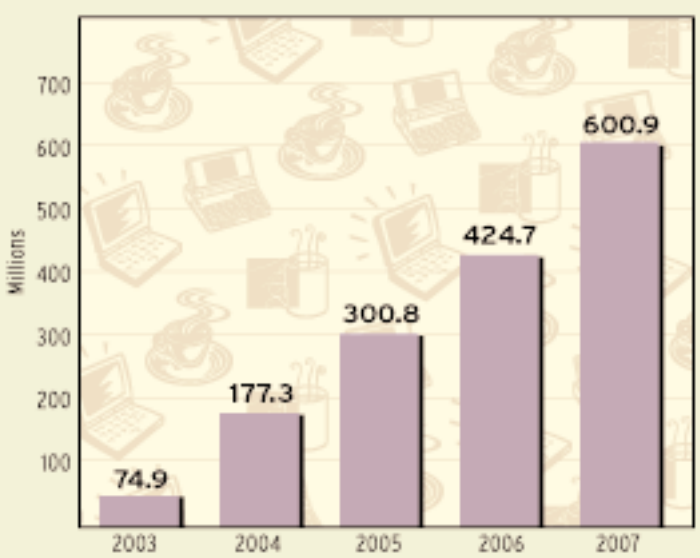
Mark Wesker, CEO and founder of a company called Artifact that sells a product designed to help organizations get a handle on the code-sharing that developers do, said his idea came out of "the constant problem of having 80 engineers but only four guys writing code. There is a plethora of lightly skilled developers."

What does it all mean for developers? It's time to come in from the code and warm up to the fact that in your department, business issues have gained equal status with technical ones. ■

David Rubinstein is executive editor of SD Times.

Number of Embedded Devices Shipping With Java

DATA WATCH



Java's success in embedded systems is assured, according to market researcher Venture Data Corp., especially in consumer and handheld devices.

A new VDC report found that Java phones and handheld devices have spread from the Asia-Pacific market, where they achieved early traction, to Europe and North America. The research firm expects more than 74 million Java-based devices to be sold in 2003, with most of those being mobile phones. The key, VDC believes, is that midrange and high-end mobile phones include a Java-based runtime environment for downloaded applications.

However, VDC reports that Java is garnering interest outside the mobile and consumer markets. Office automation and retail automation are starting to see increasing shipments, while significant research and development is ongoing in automotive telematics and military applications.

Source: Java in Embedded Systems, September 2003, Venture Data Corp.
www.vdc-corp.com

BUSINESS BRIEFS

The governing body of the European Union approved a bill to formalize the way software patents are issued with the intent of restricting them, including forbidding the patenting of business methods such as **Amazon.com**'s one-click shopping technique. Companies such as **Alcatel**, **Microsoft**, **Nokia** and **SAP** had opposed the legislation before the European Parliament. The EU Patent Office issues patents while the national courts of the 15 EU members interpret patent law. The bill will prevent enforcement of many of those patents, causing opponents to claim that invention will be stifled because the inventions can't be protected by patent law. Any "computer-implemented invention," except the technical contribution, cannot be patented, nor can actual software. The technical contribution is defined as a contribution to the state of the art in a technical field; technical character is one of four requirements for patentability . . . **TIBCO Software Inc.** announced revenue for the third quarter ended Aug. 29 of US$66.1 million, up from revenue of $63.2 million for the same quarter a year earlier. The company reported net income of $2.7 million, as opposed to a loss of $45 million in the year-ago period . . . **Palm Inc.** reported revenue of US$177.4 million for the 2004 first fiscal quarter ended Aug. 29, up from $172.3 million reported a year earlier. The company posted a first-quarter net loss of $21.7 million based on generally accepted accounting procedures, compared with a loss of $258.7 million in the first quarter of fiscal 2003 . . . Web services automation software vendor **AltoWeb Inc.** has ceased operations. ■

CALENDAR OF EVENTS

Ascential World Oct. 26–28
Miami
ASCENTIAL SOFTWARE CORP.
www.ascential.com/ascentialworld

Microsoft Professional Developers Conference Oct. 26–30
Los Angeles
MICROSOFT CORP.
msdn.microsoft.com/events/pdc

OOPSLA 2003 Oct. 26–30
Anaheim, Calif.
ACM SIGPLAN
oopsla.acm.org/oopsla2003

Mac OS X Conference Oct. 27–30
Santa Clara
O'REILLY & ASSOCIATES INC.
conferences.oreillynet.com/macosx2003

STAR West Oct. 27–31
San Jose
SOFTWARE QUALITY ENGINEERING
www.sqe.com/starwest

Borland Conference Nov. 1–5
San Jose
BORLAND SOFTWARE CORP.
info.borland.com/conf2003

Comdex Fall Nov. 16–20
Las Vegas
MEDIALIVE INTERNATIONAL INC.
www.comdex.com

For a more complete calendar of U.S. software development events, see www.bzmedia.com/calendar.

Information is subject to change. Send news about upcoming events to events@bzmedia.com.

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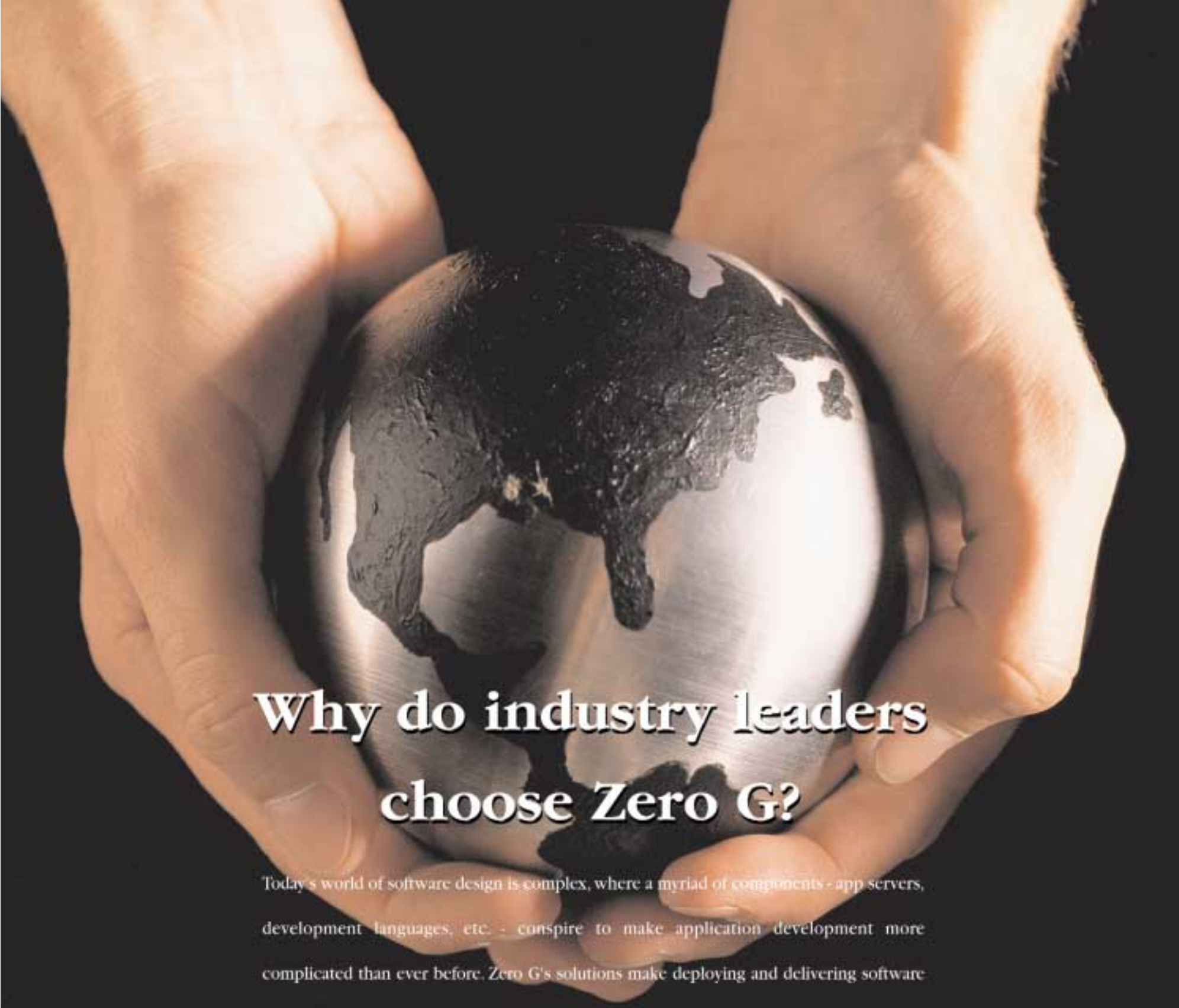

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